Chemical Week

November 1, 1952

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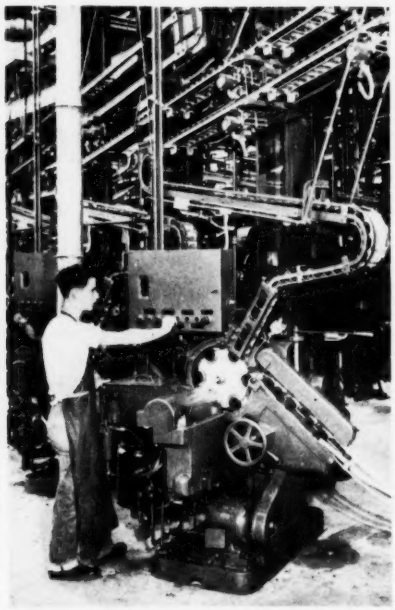

CW Report: Marketing expert Caswell takes apart industry's hodge-podge sales set-up . . p. 20

Research on trace element pick-up tabs sequestrants for farm chemistry role . . . . . p. 29

Fast rundown of production men's worries: "Things are better but no smooth sailing—yet" . p. 35

Shift in can linings: new resin formulations close in at million gallon year pace . . . . . p. 43

Upcoming vegetable oil bonanza: "synthetic" ice cream; here's how prospects shape up . . . . . p. 54

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Chemical Week

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November 1, 1952

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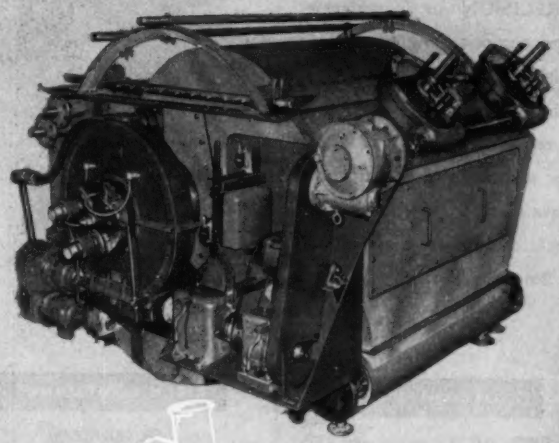

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OPINION . . .

You're Invited—R.S.V.P.

TO THE EDITOR: . . . We have read with interest the letter you published written by Mr. R. P. Sedlanz . . . who seems perturbed by the lack of publicity afforded the chemical industry. . . .

We create a science demonstration show on television, "Watch Mr. Wizard." It appears on the NBC-TV network . . . in Chicago it is seen every Saturday at 6:00 P.M. . . .

. . . We would be very happy to hear from any of your readers in the chemical industry who feel that they have subjects which lend themselves to dramatic treatment. . . .

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"Cast Off the Yoke"

TO THE EDITOR: In your Newsletter (Sept. 13) you mention that insecticide makers are worrying about a one-man crusade by a North Carolina doctor against the "wholesale and reckless use of new insecticides" which he says "has made that state one of the most poisonous in the union . . ."

Big Industry may be assured that the number of repudiators of insecticides is fast growing and once they get better organized will tone up . . . although they have no money to spend for (or against) publicity. It is largely a question of how fast how many people will awaken . . .

The health hazards of insecticides as regards direct poisonousness is not even the chief aspect . . . see the continuously vaporized poisons . . . "damned be the public." . . . This is obviously misuse, but the use of insecticides is misuse of chemistry anyhow.

Except for a few special occasions —which would reduce the entire insecticide business to its due insignificance—such chemicals are unnecessary and detrimental.

. . . Sprays are superfluous . . . there is no insect damage when natural ways are adhered to. It will get increasingly difficult for sales-loving industry and its satellites-in-thought

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OPINION . . . . . .

to silence and crush . . . such thoughts . . . the reforming idea behind it. . . . The time will come when the farmer will rid himself of the yoke imposed upon him in the form of agricultural chemicals. . . .

The wholesale destruction of the insect world is scientifically unsound . . . only a fraction of insects are harmful. . . . Upsetting natural balance by blind chemical methods can only invite new trouble. . . .

Appearance of an insect pest is always a symptom, not a causative entity; a symptom of faulty agricultural and management practices. Ours is the age of fighting against symptoms in all biology and medicine, due to misunderstanding. . . .

Let us put our house in order. . . . Give living things their organic rights . . . good husbandry and organic agriculture. . . .

There is, indeed, lots of worry ahead for the chemical industry so far as it haughtily meddles with living things. . . .

It is no longer than a few decades that we have chemistry in agriculture . . . it does not belong there to the extent it is claiming for itself.

. . . It is still feverishly planning expansion . . . will exterminate itself. The counterforce is far from being a one-man crusade; you should not withhold this fact from industry. . . .

O. W. G.
Manitoba
Canada

Facts we do not withhold, but the name of this correspondent we do, voluntarily, so that we may be free to express our views plainly.

Every time we publish an item on chemicals in agriculture, we are deluged with letters castigating us, industry, chemists, etc., and extolling the virtues of organic farming. This suggests that (1) the zeal of organic farmers is unbounded, and (2) a certain degree of organization does already exist among its proponents.

Nonetheless, most of the criticisms leveled at our industry are generalizations; they condemn heartily and all-inclusively. Seldom, however, do they veer from the emotional argument to summon any supporting fact to underpin their "down-with-industry-and-chemicals-be-damned" charges.—ED.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

152—5

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Chemical Week

BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

NEWSLETTER

Now is the time when budget committees and sales forecasting groups are sitting down to figure what's in store for next year.

CW has evaluated six important chemical industry factors, determined what they will look like during the remainder of this year, projected and predicted what will happen during the first half of 1953—but what they will look like after next June is anybody's guess.

Capital spending will decline about 12% during the calendar year—from this year's record-breaking $1.5 billion total to about $1.3 billion, according to chemical firms' present plants. Twelve per cent may sound like a lot—but only because 1952 capital outlays have been so spectacularly high. The 1953 figure is about the same as 1951's, and considerably above 1950's $0.8 billion. It's likely that the first half's capital expenditures will dip below the current July-December's $800 million, and the second half will see further shading.

Wholesale prices of chemicals have leveled off in the last four months—after declining 8% from the post-Korea peak. They'll likely rise slightly during the next several months. Several consuming industries (e.g., textiles) have picked up. Higher demand augurs a moderately higher output.

Chemical inventories have been accumulating and will continue to rise, but sales are heading up too. High-level sales are in the cards for the first half of next year.

The weak spot is exports. Foreign consumers' lack of dollars, together with constantly keener competition from chemical producers in soft-currency areas, has cut export trade substantially. Chemical imports, too, are falling and will probably continue to fall, but at a slower rate. Thus there's now a shrinking net foreign market for U.S. goods.

Monsanto Chemical was presented this week with a gold "Oscar"—first time a chemical company has received Financial World magazine's top award for the "best of all industry" annual report. It had earlier won the chemical "best of industry" award (Rayonier, Inc., second; Dow Chemical, third). Monsanto's 52-page prize-winner was its 50th anniversary report, contained in addition to current facts and figures historical highlights from the firm's early years.

Now a chemical firm with fewer than 1,000 employees is "small"—at least that's the definition put forth by Small Defense Plants Administration in its plans to get a share of chemical expansion certificates for "small business."

SDPA is urging small firms to apply for expansion certificates on methylene chloride, resorcinol, perchlorethylene and synthetic glycerine—programs in which expansion goals haven't yet been reached.

The agency's criterion appears unrealistic to many Washington observers since Congress and other agencies generally take 500 employees as the dividing line, and the chemical industry generally employs fewer workers to produce corresponding values of output. Nevertheless, it is working with DPA to set aside definite shares of the various expansion goals for the "small" category.

DPA last week set up an expansion goal for selenium, its alloys and compounds. Capacity projected by 1955 is 1.1 million pounds (selenium content) and represents a capacity increase of nearly 250,000 pounds over 1950. Selenium is scarce, says DPA.

Selenium, incidentally, also came up for discussion by NPA and its printing ink advisory committee. The ink makers told NPA that it and cobalt are hard to come by, but that drying oils are plentiful.

When DPA set its new expansion goal for titanium (CW, Oct. 18), it regarded batch production of the metal a considerable disadvantage. "Batch," however, is a relative word: Du Pont has increased the size of its production batches from 100 to 3,000 pounds.

Look for further repercussions from the Pacific Northwest power shortage (see p. 11). The cut-off of interruptible power has already slashed aluminum output by a third, output of abrasives, caustic-chlorine, ferrosilicon, magnesium and pulp by lesser amounts.

On top of that, Defense Electrical Production Administration is expected momentarily to issue an order (effective two weeks after issuance) specifying how further power cuts will be made, which will affect users now supplied under firm contracts.

Any informational tidbits about the Du Ponts' financial affairs that weren't aired in the recent anti-trust suit in New York (see p. 14) will probably be exhumed in the new anti-trust case (U.S. vs. Du Pont, General Motors, U.S. Rubber, and 118 individuals) scheduled to come to trial November 18 in Chicago.

Just published is the Anti-Trust Division's 172-page pre-trial brief that, like a baseball scorecard, lists the defendants by name and position. Among the trust-busters' allegations: The Du Pont family has utilized its control over the three named companies "to create vast protected markets, and to exclude competitors." G.M. and U.S. Rubber, they claim, are a "captive market" for Du Pont-made paints, varnishes and several other chemicals; Du Pont uses GM trucks and autos exclusively; and various GM divisions bought 50%-64% of their tires from U.S. Rubber.

Because Texas Attorney General Price Daniel wants to plead the state's case in defense of the contested gathering tax on natural gas before he leaves in January for the U.S. Senate, the Court of Civil Appeals has moved the hearings from January 21 to December 3.

Most chemical companies are now paying the tax under protest, pending settlement of the suit. It's expected to go to the U.S. Supreme Court, although the legislature may attempt to amend the present law.

The early third-quarter earnings figures are now trickling out of the calculating machines, show a mixed trend—some chemical process firms are up, others down.

Some examples (all figures in millions): Du Pont sales 407—up 7%, net 33—up 70% from a year ago; Penn Salt sales 14—up 24%, net 0.7—up 6%; International Minerals & Chemical sales 17—up 12%, net 1—up 3%; Chas. Pfizer sales 27—up 9%, net 2—up 34%; Rohm & Haas sales 25—up 5%, net 1.2—down 4%; Hercules Powder sales 44—down 19%, net 5—down 36%; Diamond Alkali sales 18—down 14%, net 1.2—down 30%; Parke, Davis sales 28—down 17%, net 4—down 12%; Heyden Chemical sales 5—down 28%, net 0.2—down 76%.

. . . The Editors

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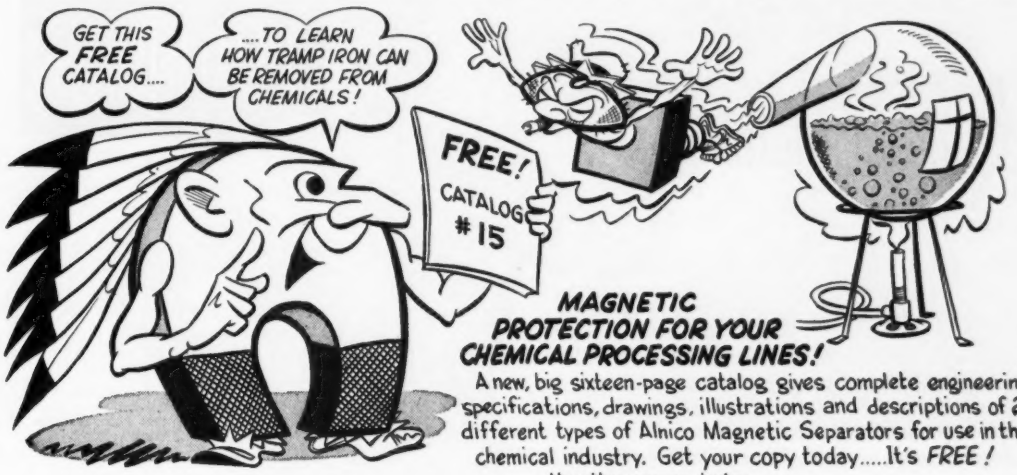

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BUSINESS & INDUSTRY . . . .

Prelude to Sale?

The complicated legal tangle over General Aniline & Film Corp. may be heading for a climax next Monday. Government attorneys will ask Federal Judge David R. Pine to throw out the suit over title to GAF.

And while the case and any decision won't seem as important to the general public as Judge Pine's decision in the steel seizure case, it will be closely watched because a dismissal could allow the government to sell its GAF stock.

The point on which dismissal is asked concerns seizure by the Swiss Government of pertinent records. The papers belonged to H. Struznegger & Co., banking affiliate of I. G. Chemie-Interhandel, the holding company which claims ownership of GAF.

Say the government attorneys: The seizure was not made in good faith.

The reply: The papers were seized in conformance with Swiss law.

If Judge Pine rules that the seizure was in good faith, the complicated case could become even more so. One group of stockholders—the so-called Kaufman group—already has been allowed to intervene in the case. A second group (the Attenhofer stockholders) may be granted the same privilege if Judge Pine approves. Here, the decision is fairly certain, since the Kaufman group won a Supreme Court decision last winter which allowed them to enter the case.

Four for Harmony

Mathieson Chemical Corp. has grouped its company activities into four functional parts: companies to handle industrial chemicals, agricultural chemicals, research and development, and E. R. Squibb & Sons (for drugs and pharmaceuticals.

The final pressure for the reorganization came when Mathieson merged with Squibb, bringing in a completely new product line. The shuffle, however, had been in planning stages for almost a year.

The move also gave the first indication of how Squibb interests would be assimilated: The companies taking over Mathieson's pre-Squibb operations will each have a president reporting to Tom Nichols as Mathieson Corp. president. A new post, director of drug and pharmaceutical operations, has been established, through which Squibb will be operated.

NORTHWEST HYDRO POWER: Bargain blocks in future plans.

Looking Beyond Today

Current low water flow in the Pacific Northwest highlights a seemingly recurrent seasonal power shortage there.

But it's the country's only section boasting an undeveloped potential of 30 million kw; 10 million of this can be developed at 2.5-3 mills per kw.

Look for increased industrialization based on generating power a-building and authorized.

Rain broke a 42-day dry spell in the Northwest last week, but this autumn's power shortage remains critical. The fall wasn't much (0.03″ in Portland; 0.30″ in Seattle) and overcast skies increased power loads, cancelled out much of the gains.

The drought-induced decline in natural water generating capacity exceeds any seasonal low since Bonneville Dam (*cut*) was built; this year's Columbia Basin drought, in fact, has been the worst in 30 years. And it is affecting Northwest industry. No heavy rains are forecast, and Defense Electrical Production Administration may shortly issue a curtailment order.

This is the second consecutive year Bonneville Power Administration has had to cut interruptible power to its industrial customers (mainly aluminum plants, but magnesium, chlorine, ferroalloys, manganese and others are also affected). In this record and in the impression created last year that there is no power available in the area for industrial expansion (at least one large Eastern company switched a plant site to the Ohio Valley, and there were suggestions that Pacific Northwest aluminum plants be relocated elsewhere), pessimists may take comfort.

But Northwest industrialists familiar with the "big picture" say gloomy conclusions about the section's available power are based on misconceptions. Partisans of both public and private power agree there's enough generating capacity a-building and authorized to support more industry—and enough low-cost hydroelectric potential for continuing expansion for a number of years. There is disagreement only on how power should be marketed and whether increased capacity should be allocated to a few large industries or

to a number of small industries. No matter what the final character of distribution, there are many potential consumers in the chemical process industries.

Where in the U.S.? Basis for this confidence in expansion is this hard fact: The Federal Power Commission estimates there is an undeveloped potential of over 30 million kw in the Pacific Northwest, 10 million of which can be developed to sell at less than 3 mills per kwh. (Current rate is 2 mills per kwh at 100% load factor, but rates will be raised as more expensive projects are averaged in with Bonneville and Grand Coulee.) No other section of the country can offer such bargain blocks of power.

How rapidly industry will expand in the Northwest, however, depends on how far and fast further hydroelectric development of the Columbia River system is pushed. In 1951 this area obtained about 97% of its electrical energy from the river system.*

Last year the Northwest produced about 30 billion kwh from hydro resources, 456 million kwh from steam. Counting on median water years and maintenance of present construction schedules, these additional amounts will become available for industrial expansion:

1954-55	**156,000 av. kw.**
1955-56	**275,000**
1956-57	**363,000**
1957-58	**512,000**
1958-59	**1,055,000**

Earmarked Blocks: These amounts are over and above requirements of existing firm and interruptible loads, including estimated increases in demand by present users other than electro-process industries; 500,000 kw of firm power set aside for private utilities as it becomes available; and 120,000 kw of firm power allocated to new defense industries (10,000 for abrasives at Vancouver, Wash.; 65,000 for nickel at Roseburg, Ore.; 40,000 for an as yet unnamed potential new aluminum producer; and 5,000 for chemicals). Until 1956-57 this power will be available only on an interruptible basis.

BPA estimates that over the years interruptible power is available about 75% of the time. During the past 4 years, loss of interruptible power has cost the Northwest aluminum industry only 6% of its designed production capacity (loss varying between 25% in 1948-49 and none in 1950-51). Last year 2,000 tons were lost during the power shortage, but over 3,500 tons were lost through a strike at Reynold's Troutdale, Ore., plant. For the 2 years ending June 30, power costs for the industry averaged $45 per ton, including firm, interruptible and steam-generated. In other areas, power costs run as high as $78-80 per ton.

Taking a Chance: How willing industry is to gamble on interruptible power supplies is illustrated by Pacific Carbide and Alcoa. When it was obvious last year that interruptible loads would have to be cut off, Pacific Carbide asked to be allowed to remain on stream during the cut-off on the condition that if rainfall were not sufficient to fill the reservoirs later on, it would forfeit an equivalent number of kwh out of its firm power block plus an additional amount to cover loss of head caused by the September drawdown.

BPA accepted the proposal. So while other plants switched to steam-generated power or shut down, Pacific Carbide stayed on hydro. Rain filled the reservoirs, and Pacific Carbide paid only its usual rate for the interruptible power it consumed during the shortage. Had the rains not come, however, it would have had to halt part of its operations based on firm power, all based on interruptible.

This year Alcoa did much the same thing. Additions to Rock Island Dam were scheduled to turn the first generator for Alcoa's new aluminum plant at Wenatchee, Wash., on Sept. 15. The current shortage, however, would have caused BPA to cut power to Alcoa on the 4th, forcing it to close down its potline for 11 days—an expensive proposition.

Alcoa asked BPA to keep it potline on-stream until it got 40,000 kw from Rock Island, Alcoa to pay in kind as additional Rock Island generators come in. BPA engineers calculated that loss of head due to drawing down the reservoirs would cost BPA about ¼ kwh for every kwh sold to Alcoa during the period. Accordingly, if rains do not come early enough and heavily enough to refill the reservoirs, Alcoa will have to pay about 1.25 kwh for every kwh it uses.

Two Themes: Recurrence of the Northwest power shortage depends on the weather cycle, on whether Congress and private utilities will maintain and expand present new generating schedules, and on how fast industry expands in the area. You'll be hearing more about the power shortage and "lost" production, but in the long run, you'll probably hear more about new plants there. For nowhere else is there so much potential power so cheap.

* For the nation as a whole, hydro contributes only 27% of power, with fuel the principal source.

ICI's WHINFIELD: Tangible results from a country-house laboratory.

Atlantic Zigzag

The British people got a first look at their new miracle fiber a few days ago. The fiber: Terylene.

They were running behind U. S. residents, who have been seeing and buying garments made out of the same—chemically—fiber for the past two years under the Du Pont Dacron tradename. But Terylene maker Imperial Chemical Industries feels that this time lag wasn't wholly a disadvantage. Its development men have come up with some promising industrial uses—in addition to the more normal apparel applications. They regard as solved the dyeing problems posed by the polyester fiber.

The Terylene demonstrations, in effect, put the final flourish on a trans-Atlantic zigzag. Du Pont's Wallace Carothers began it all when he studied (and discarded) polyesters as fiber-forming materials.

His work was noted in England by J. R. Whinfield of the Calico Printers' Association. Whinfield and a colleague hit upon an ethylene glycol-terephthalic acid polymer to which Du Pont bought U. S. rights. It then proceeded to develop the fiber here in the United States.

ICI, meanwhile, bought out the Calico group and hired inventor Whinfield to continue work on the fiber. Research, which went on in a crude laboratory fashioned from an old Victorian country house in Welwyn Garden City, near London, now has resulted in Terylene's commercial introduction.

Perils of Terylene: Much of the delay, ICI says, can be chalked up to the arduous job of obtaining building licenses and materials in present-day Britain. But though Du Pont was two years ahead in getting a pilot plant

operating, it may be only a year in front on volume production: Du Pont's Kingston, N. C., facilities will be producing next year; ICI has set the end of 1954 as the target date for its production.

An indication of what each company thinks marketwise is the fact that Du Pont will be able to produce 25 million pounds of staple and 10 million pounds of filament yearly. ICI plans a 50-50 split on its 11 million-pound capacity.

Most of ICI's staple, like Du Pont's, will go into apparel. But industrial users will be the first to benefit from the filament. Belting, filter cloth, ropes, anode bags, fire hose and parachute cloth are among such applications. Most promising, however, is use as cord for heavy duty tires.

Death of a Problem: ICI claims it has solved the dyeing problems of the material, and won't have to use special equipment. Says ICI's E. D. Kamm, "We can now recommend methods which will give an almost complete range of shades at reasonable fastness." Probably, counting on development work here, the difference between U. S. and U. K. procedures is just one of degree.

ICI, with its world-wide manufacturing and sales rights, already has exporters queueing up at its door. But since it sees production as insufficient for all demands, the company plans to sell only to British industries.

Foreign sales? It will only be a question of time, ICI says, before production in other countries will be licensed.

Phonetic Twin

Although some aspects of the soil conditioner business may seem fogged with uncertainty, one fact looms clear and solid through the haze this week: Monsanto has a firm legal grip on the name Krilium as a trade-mark.

This is seen in the permanent injunction that has been issued by U. S. District Court in Brooklyn, prohibiting the Acrylium Corp. from using "Acrylium" either as a company name or as the name of its soil conditioner. Monsanto claimed that the similarity in names was misleading and constituted unfair competition.

New Name Adopted: That injunction, provided for in a consent judgment, terms of which were agreed to by both parties last month, also applies to Acrylium's parent company, Long Island Paint & Chemical, and to its co-owners. Long Island has decided to resume selling its soil conditioner next spring under the name "Tiltex," which is derived from the words "tilth" (tilled or cultivated land) and "texture."

Long Island first argued that the word Acrylium came from a key ingredient in the product, acrylic acid. The concern also pointed to this difference between the two soil conditioners: Tiltex is a liquid, marketed in quart and gallon-size glass jars and in five-gallon buckets, while Krilium is a powder, sold in cartons.

"We had many arguments on our side," say the Long Island owners, "but the case could have been long and expensive, and inasmuch as our product's name didn't have time to become well established, it just didn't seem worth fighting for."

Purely Fictitious: "Krilium," according to Monsanto's petition, is a dreamed-up word that was coined as a trade name and has no other meaning. It says Monsanto has spent some $500,000 on research and development of synthetic organic polyelectrolytes and processes for conditioning the soil with those products.

Monsanto has been selling Krilium for a year now, while Acrylium went on the market last May 26. During the "few months" before its treble-damage suit was filed July 29, Monsanto spent $200,000 advertising its product, the petition states, and during that same period, Krilium sales were more than $1 million.

The law suit and its outcome serve as a warning that Monsanto, which ever since it virtually created the soil conditioner business has been badgered by a myriad of competitors, won't tolerate phonetic trifling with its trade name.

COMPANIES . . . .

Sinclair Oil is about to go to the market on large fund raising. It will sell about $100 million in convertible debentures to common stock owners. Serving as head underwriters will be Smith, Barney & Co. (which last year performed a similar service for Dow's $100 million offering) and Merrill Lynch, Pierce, Fenner & Beane.

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W. R. Grace & Co. and Davison Chemical are conducting negotiations that may lead to granting Davison an option to buy the $18 million Memphis, Tenn., ammonia-urea plant which Davison will help supervise. The plant will be operated with technical advice from Davison.

•

Hydrocarbon Chemicals, Inc., has ac-

WM. W. LAVENDER

Chem Plant Legacy

ONE OF THE FIRST PERSONS to benefit by the construction of Mathieson's new caustic soda and chlorine plant near McIntosh, Ala. is Jimmy Malone, 28, crippled youth who had waved from the porch of his nearby home to the construction workers each day while the plant was a-building. Near the end of the job, the AFL workers learned that Jimmy (a) could not leave his home unless carried and (b) was a skilled typist. The workers bought wheelchair and typewriter, built a ramp to Jimmy's porch, and then handed him the $23 change left over from passing the hat.

quired Cornwell Chemicals, Inc., of Paterson, N.J.

•

Calumet & Hecla, Inc., is the new name approved by stockholders of Calumet & Hecla Consolidated Copper Co. Stockholders also amended by-laws to permit the company to diversify its business.

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Frontier Refining Co. plans to sell $1 million in 5.75% convertible debentures for new equipment and working capital.

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Lone Star Gas has borrowed $110 million at 3.5% due in 1977 from insurance company sources; $85 million will repay present funded debt, and the rest will go to expansion. The company has plans for $100 million worth of expansion in the next five years.

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Westcoast Transmission has made preliminary arrangements to obtain the $111 million it will need for its Pacific Northwest natural gas line (*CW, Oct. 25*). Any stock offering is, of course, contingent on approval by U.S. authorities of a pipeline.

•

Thiokol Corp. has contracted to work as technical consultant for the reactivation of the Longhorn Ordnance Works at Karnack, Tex. The units will manufacture solid propellants developed by Thiokol at Huntsville, Ala. The plant will be ready to begin production sometime in 1954.

•

Mississippi Chemical Corp. has filed a registration statement with the SEC on a 2 million share limited dividend common stock issue. A total of 956,588 shares has been issued; the rest will be offered at $5 apiece to farm groups, and secondarily to other buyers of the fixed nitrogen product the company will manufacture. Purchase of a share carries rights to purchase specified amounts of ammonia or derivatives.

Whose Apples?

Imperial Chemical Industries, Ltd., this week is smack-dab in the midst of a new international version of the old legal dispute: If an apple tree is planted in A's yard, but grows so that it leans over B's property, who gets the apples?

Last July 30, the U.S. District Court in New York, after finding that some of ICI and Du Pont's world-wide operations were at odds with the United States' Sherman Anti-Trust Law, ordered ICI to reassign to Du Pont within 90 days, all of Du Pont's foreign patents that had been assigned to ICI under their so-called nylon agreement of Dec. 31, 1946.

Now, just before that 90-day period runs out, the British Court of Appeal in London has upheld a lower English court's temporary injunction forbidding ICI to carry out the reassignment ordered by the U.S. court (*CW Newsletter, Oct. 25*). Which court should ICI obey?

Intrusion Charged: "While we pay great attention and respect to the courts of the United States," say the Master of the Rolls and two Lord Justices of the Court of Appeal, "it is nonetheless the duty of our own courts to protect the rights of persons subject to their jurisdiction. The order of the U.S. court is an assertion of extraterritorial rights because it would affect or destroy the rights of a British national not subject to its jurisdiction."

The "British national" in this instance is British Nylon Spinners, Ltd., a company that is owned 50% by ICI and 50% by Courtaulds, Ltd. BNS originally held the exclusive-in-Britain nylon sub-license from ICI, and was to become direct licensee after ICI became outright owner of the British nylon patent in 1947. However, it appears that the new license was not issued.

Promptly after the decision of the U.S. court, BNS rushed into London's Vacation Court and obtained the temporary injunction restraining ICI from handing the British patents back to Du Pont. BNS contends that the contractual obligations were English and everything in connection with them was carried out in England, and were thus beyond the jurisdiction of any foreign court.

Englishmen's interest in this case is not entirely a matter of national pride —one thing that worries BNS is the possibility that any change in the old arrangement would be a pounds, shillings and pence blow to the firm's nylon trade.

CURRENT LIST OF DPA-CERTIFIED FACILITIES

Company, Location	Product	Amount Certified	% Certified
Air Products, Walkerton, Ind.	Oxygen	$10,400	45
Air Products of W.Va., Parkersburg, W.Va.	Oxygen	12,042	45
Armour & Co., Bartown, Fla.	Phosphate rock	5,608,000	50
Phillips Chemical, Moore County, Tex.	Nitric acid	1,684,000	45
Diamond Alkali, Painesville, O.	Chemicals	228,500	45

EXPANSION. . . .

Superphosphate: Newly-named Western Phosphate, Inc. (*CW, Oct. 25*) has begun construction of its superphosphate plant near Garfield, Utah. Company is joint subsidiary of Stauffer Chemical and Garfield Chemical & Manufacturing, in turn, a joint subsidiary of American Smelting & Refining and Kennecott Copper.

•

Ammonia: Atlantic Refining plans to construct a new ammonia unit at its Point Breeze (Philadelphia) refinery.

•

Refineries: Four companies last week made news on refinery expansion:

- Cities Service will spend $11 million on expansion and modernization of its East Chicago, Ind., refinery. Coking unit capacity will be doubled, a new crude topping unit built, and a new catalytic reforming unit installed. Completion date: end of 1954.
- Standard Oil of Texas has completed a $10 million refinery expansion at El Paso. Facilities include a synthetic crude unit, Houdriflow cat cracker, a vacuum flash unit, gas recovery plant and alkylation equipment.
- British American Oil will add $8 million worth of catalytic cracking and polymerization units and gas concentration facilities to its Clarkson, Ont., refinery.
- Humble Oil & Refining will add a $4.8 million catalytic polymerization unit to its Baytown, Tex., refinery. Construction work is to begin early in 1953.

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Bauxite: Alcoa has begun bauxite refining operations at its $54 million Bauxite, Ark., facility. The resulting alumina will be shipped to the Alcoa Texas smelting plants.

•

Copper, Manganese: Defense Materials Procurement Agency has signed an eight-year contract with Bagdad Copper for the sale of 27 million pounds yearly of refined copper and 940,000 pounds per year of manganese from its mine at Bagdad, Ariz. The company will spend $14 million in expanding its facilities.

- DMPA also has contracted with Southwest Engineering of Los Angeles for research into methods of obtaining manganese from "wad" ores, found in Virginia and Arkansas.

•

Titanium: Du Pont expects to begin construction early next year on its projected $15 million expansions in titanium at its Edgemore and Krebs works in Delaware's New Castle County. Titanium sponge will be produced at both plants; the major part of the increase in capacity is ticketed for the Krebs works.

Costly Frosting

There's a thicker and sweeter coating of frosting on the payroll cake in the chemical processing industries than in almost all other kinds of business in the U.S.—and the sugary icing is becoming more luscious and more costly right along.

Not only is the cost of fringe benefits increasing as expressed in total dollars; it's also becoming a larger fraction of the total outlay for labor. In fringe benefit payments per employee, CPI companies are out-ranked only by petroleum, finance and utility companies.

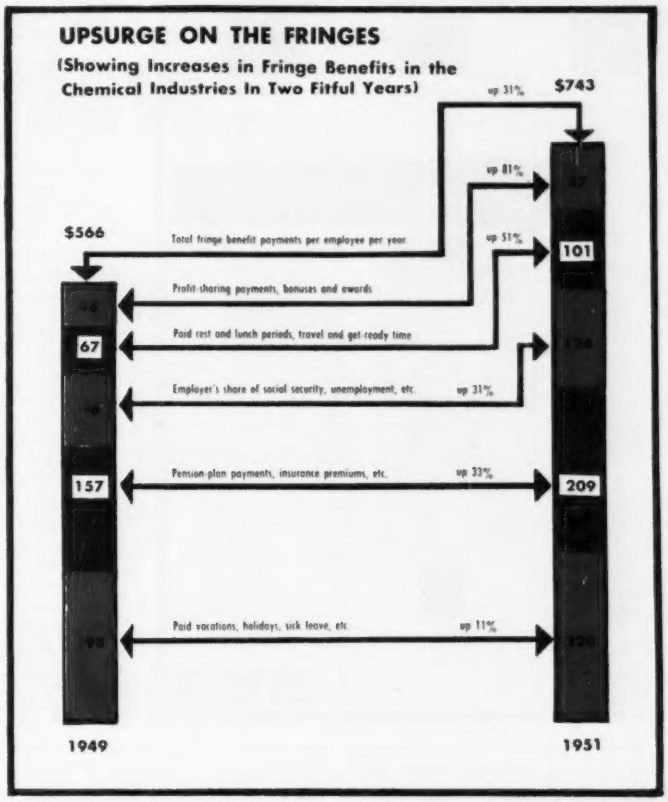
Rapid Rising: Fringe benefits—a motley assortment of payments ranging from social security to paid rest periods and two hours' pay for time spent at the polls on election day—have been ascending even faster than total payroll costs since World War II. For chemical companies, this rise has amounted to more than 57% since 1947, according to a recent study by the Economic Research Department of the U.S. Chamber of Commerce.

Actual cost of fringe benefits in the chemical industry during 1951 came to an average of $725 per employee. This was 21% more than the average for all manufacturing industries, and 11% above the average for all businesses in the country.

Fringe benefits figured as 20.4% of total payroll in the chemical industry, compared to a 16.4% average for all manufacturing. Another comparison: Fringe benefits cost chemical companies 34.2¢ per man-hour, while the corresponding bite on all manufacturing industries averaged 28.9¢.

Bountiful Bonuses: In two areas particularly, chemical firms appear to be especially generous to employees. For such fringe benefits as paid lunch hours, rest periods, wash-up time, get-ready time and clothes-change time, the chemical industry's average in 1951 was $110 per worker, compared to a $74 average for all manufacturing industries and $64 for all businesses. In Christmas bonuses, special bonuses and service awards, the averages were $51 for chemical, $36 for all businesses, and $21 for all manufacturing.

Biggest single increase in fringe benefits in the chemical industry has been in payment for time not worked —paid vacations, bonuses in lieu of vacation, holidays not worked, sick leave, and paid time off for jury duty, military training periods, and funerals. These payments rose by 62% since 1947, from $184 to $298 per employee.



As employers have long since discovered, there's a heavy collateral expense connected with all these fringe benefits. In the old days, the firm's paymaster could work out the pay figures in his head (44 hours at 75¢), but now even smaller companies need a brigade of bookkeepers with calculating machines to reckon unemployment compensation, workmen's compensation, pension-plan premiums, hospitalization insurance and even tuition refunds.

LABOR . . . . . .

Settled Conditions: More wage increases go into effect this month as the result of industrial agreements newly reached in the chemical process industries.

• A strike has been averted at the atomic energy plant in Oak Ridge, Tenn., with the signing of a new contract between Carbide & Carbon Chemical and the United Gas, Coke & Chemical Workers (CIO). It provides for a general wage increase of 10¢/hour. Construction work in the gaseous diffusion area of the mammoth Oak Ridge plant has been stopped by a walkout of some 50 truck drivers and 80 plumbers.

• Hartsville Print & Dye Co. at Hartsville, S.C., has entered into a new three-year contract with United Textile Workers (AFL). The agreement calls for a 5¢ hourly wage increase and "improved" provisions for vacations, holidays and insurance.

• The AFL Textile Workers now claim to have won their 3½-year campaign to organize employees at the Union Asbestos & Rubber plant in Marshall, N.C. The company has agreed to reinstate 13 UTW members and give them a total of $28,000 back pay; and to withdraw its appeal from an NLRB ruling against the company. The union now expects an early election for certification.

•

Between the Unions: Both of the two principal unions in the chemical industry have victories to point to this week.

• At Trenton, N.J., the International Chemical Workers Union (AFL) has won bargaining rights for the Panelyte Division of St. Regis Paper Co. Results of the election there

Wonder No Longer

"'Wonder fibers' is certainly more appropriate than 'miracle fibers,' since the poor consumer wonders what is coming next, wonders what it is made of and wonders how he will be benefited."

Thus wrote textile man J. B. Goldberg, of J. P. Stevens & Co., earlier this year (*CW, Mar. 8*).

His challenge hasn't gone unanswered. Producers of the fibers are joining with retail stores to try to remove the wonderment from the wonder fibers.

Chicago's Carson, Pirie, Scott & Co. department store last month presented one of the more extensive fiber promotions. In full page newspaper advertisements (*see cut*), it heralded a two-week series, "The magic of miracle fibers."

Twice each day, following fiber fashion shows, representatives of the producers explained and demonstrated the uses for each fiber, and gave pointers on how to wash, otherwise care for them.

Featured during Carson's two weeks of two-a-day shows: Du Pont's Dacron, fiber E, nylon and Orlon, Owens-Corning's Fiberglas, Chemstrand's Acrilan, Tennessee Eastman's Chromspun, Carbide's dynel, Virginia Carolina's Vicara, and Celanese acetate, in addition to synthetic-natural fiber blends.

Another store wasn't quite as serious.

A copy writer for New York's Gimbel Bros. last week asked the rhetorical question, "Just what is Dacron anyway?"

Her answer:

"Dacron is a polyester fiber. It is composed of ethylene glycol and terephthalic acid. Don't try it without the recipe."

(eligible voters, 720): for ICWU, 384; for United Rubber Workers (CIO), 251; for neither union, 1; challenged ballot, 1; and void, 1.

• Employees of the Du Pont River Road plant at Buffalo, N.Y., have voted to disband their old unaffiliated Cel-O-Seal & Sponge Workers Union, and to form a new local within the Gas-Coke (CIO) union. Conklin Scribner, president of the old union, says the employees wanted to join a large labor organization to reach a satisfactory agreement with the company. Talks on a new contract broke down on Sept. 30, and the old contract (scheduled to expire last May 1) is still in effect.

•

Rift in Clouds: Part of the CPI sky still is shadowed by storm clouds of strikes, but there has been at least one cleft of clearing in that nimbus screen.

• Apparently optimistic of an early settlement with West Virginia Pulp & Paper, the approximately 430 employees at its Williamsburg, Pa., plant have returned to work after having been on strike seven weeks. The strike by United Paperworkers of America (CIO) is continuing at the two other plants in the same bargaining unit, Luke, Md., and Covington, Va.

• Firestone and United Rubber Workers officials have started in again on negotiations for a new contract. They came to terms in August on an agreement that called for the same 10¢ wage boost granted by other major rubber companies last summer, but the settlement was rejected by two locals representing the majority of the bargaining unit.

• In Abbeville, La., an explosion destroyed a bus that had been used to take non-striking employees into the strike-bound plant of the Jefferson Island Salt Co. No one was injured in the blast, which occurred just before the driver was about to make his second run to the plant that morning. The strike by about 250 ICWU members has continued for nearly two months now

• Six pickets at the General Aniline Works in Rensselaer, N.Y., have been arrested on the charge that they blocked the path of a train of nine cars, most of them loaded with coal, headed into the plant.

• Asserting that most of the 58 strikes at the atomic energy plant in Padaucah, Ky., have been caused by disputes between unions and that "the men never know why they are striking," Rep. Thurston B. Morton of Kentucky has called for a Congressional investigation into the labor situation there.

FOREIGN . . . .

Brazil/DDT: Italy's Montecatini interests will invest the equivalent of $10 million in a Sao Paulo plant to make DDT and related products. When completed in 1954, the plant will produce enough of the insecticide to supply the entire Brazillian demand.

•

Turkey/Nitrogen: A government group is looking for $17 million in U.S. capital plus technical know-how to make possible production of fixed nitrogen compounds in Turkey. The group, Makina ve Kimya Endustri Kurumu, wants to produce (annually) about 6,000 tons of nitric acid and 2,000 tons of ammonium nitrate for explosive use, 3,000 tons of urea for plastic and fertilizer use, and (again for fertilizer) 75,000 tons of ammonium nitrate-ammonium sulfate, and 41,000 tons of ammonium nitrate-calcium carbonate.

•

West Germany/Phosphates: Five of the I. G. Farben splinters have combined forces in a new company

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Knapsack-Griesheim A. G., Knapsack bei Koln. The company, which will make industrial gases and fertilizers, is now constructing an electric furnace for production of elemental phosphorus, which then would go to make phosphoric acid. Yearly elemental phosphorus production is estimated at 4,500 tons, with a 10,000 ton figure listed for the acid.

•

Denmark/Manganese Sulfate: Denmark soon expects to be in full-scale production near Aabenraa, a few miles north of the German frontier, with a plant to process manganese sulfate from bog iron ore found in the Aabenraa district. At present any iron ore assaying less than 10% manganese can be exported, but that containing over 10% cannot. This factory will remove the manganese from such ore.

•

Bolivia/Tin: The new Estenssoro government has seized control of the big Aramayo, Patino and Hochschild tin mines, and will operate them through its mining corporation. Owners are ostensibly to receive compensation, though some large claims filed against the properties by the government may seriously reduce this.

Chile, next door, has been casting covetous eyes on the Anaconda and Kennecott mines, but in all probability will not attempt nationalization.

•

Africa/Metals: The Canadian Frobisher interests have about completed arrangements to start production at their Kilembe copper-cobalt properties in Uganda. Roasting and treatment facilities will produce electrolytic copper and cobalt oxide. Total cost of the venture is estimated at over $20 million.

Atomic Power

The Atomic Energy Commission, in obtaining electric energy for its now abuilding U-235 separation units at Paducah, Ky., and in Pike County, Ohio, may be doing other chemical process fields a service.

The favor: making available more electric power in the Ohio Valley region on a long-term basis.

At first sight, last week's AEC action in signing an agreement with 15 private power companies—acting jointly as Ohio Valley Electric Corp.—to provide 1,800,000 kilowatts of electric power for the Pike County plant would seem to deprive nearby industries of power. Actually, it means the establishment of more new generating facilities which could be used to supply both the AEC and other customers.

The 15 companies plan to build two generating units to produce a total of 2.2 million kilowatts of power, on a 24-hour basis. The power would be available in November, 1956. And undoubtedly, at least at the start, this power would be available to other users. The electric concerns emphasize, though, that if a company with large power demands is thinking of building in the region, now is the time to consider power needs and sign a contract—since AEC demands, enormous as they are, have a habit of going up.

Example of this is the AEC's new contract last week with another power group, Electric Energy, Inc.

The five EEI members have been building a plant at Joppa, Ill., just across the river from AEC's Paducah facilities, to give the AEC 500,000 kilowatts. The new contract ups this to 735,000 kilowatts, making necessary an expansion of two additional generating units to the four now planned.

Both the Joppa and Ohio Valley programs underline the tremendous need for power by AEC, and the resulting expansion in the generating facilities of the area.

They presage, perhaps, a new emphasis on the Ohio Valley region as a likely site for new plant location for the chemical process industries.

KEY CHANGES . .

Charles A. Specht: To president, foreign trade subsidiaries, Chas. Pfizer & Co., New York, N. Y.

Max Y. Seaton: To senior vice-president and technical coordinator, chemical division, Food Machinery and Chemical Corp.

Samuel Miller: To executive vice-president, Schenley Laboratories, Inc., New York, N. Y.

Howard Smith: To manager, Industrial Products Dept., Union Carbide & Carbon Corp., New York, N. Y.

John J. Grady: To executive vice-president and general manager, Chromium Mining and Smelting Corp., Chicago, Ill.

Mead W. Batchelor: To president, Riverside Metal Co., Riverside, N. J.

E. W. Petersen: To general sales manager, American Blower Corp., Detroit, Mich.

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Edward Mallinckrodt, Jr.: Midwest Award of American Chemical Society's St. Louis Section, to be awarded Nov. 8.

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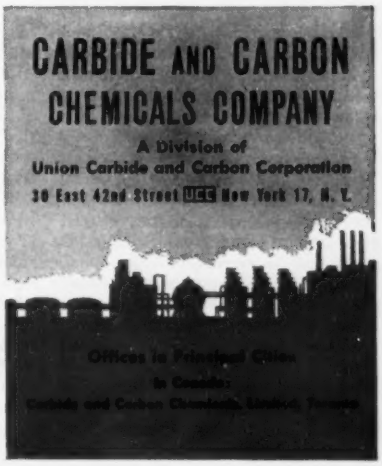
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In the Middle—More Ways than One

STICKING its head in the sand doesn't help an ostrich. Neither does ignoring the problem help the chemical industry to strip the sands of controversy out of its distribution gearbox. One of these days it will be forced to make up its mind on the proper role to be played by middlemen in the chemical sales pattern.

In May, Chemical Week sounded the death knell of the post-Korea "gray market" in "The Merry-Go-Round Slows Down." This was followed up by an examination of "The Distributor—Man in the Middle" as an important factor in a buyers' market.

These, and other similar news articles, have brought a whirlwind of reader comments. Because there seems to be so much misunderstanding in the industry concerning the proper role of chemical "middlemen," and because this is the time of year when sales executives are reviewing their distributor contracts, CW decided to approach an outside, impartial authority on the whole field of distribution, with experience extending beyond that of just chemicals, for an evaluation of our industry's middleman status. This is his report to us—and our report to you.

He sets the stage for his report with the following comments on the industry's problem as he has seen it over recent years:

"My first assignment in industrial chemical selling was a territory in a large city; that's the traditional 'low man on the totem pole.' There were a few large manufacturing plants, the main offices of major companies were 'house accounts,' orders came hard, were small in size and the competitors for the order were thick as flies.

"With a knowledge of sales and distribution largely limited to text book economics, I was quickly confused by the fact that I was competing not only with other producers but with distributors (jobbers, supply houses, etc.) some of whom we ourselves supplied. Was it economic for our company to be financing two separate selling efforts for the sales order—my expense and that of our own distributors? How could it be economically sound to sell the same customer sometimes direct, sometimes through middlemen? Wasn't there black and white economic logic to either one channel of distribution or the other?

"Gradually I became aware that this sort of thing was happening all the time. The industry in general appeared to lack a clear idea of what class of business was being supplied direct and what through middlemen, and seldom exhibited any policy on how it ought best to be handled. Historical relationships and accident seemed to rule the haphazard process by which chemicals got to the people who wanted them.

C W Report

You Decide: Competitors or Partners

by W. Cameron Caswell

Let's look first at the "normal" distribution pattern of industrial chemicals from the consumer's end. Suppose as a dry cleaner you need carbon tetrachloride. You could buy it direct from the local stocks of several chemical manufacturers or you could turn to a supply house for the dry cleaning trade, or a chemical distributor of a more general type.

Supposing you were a municipality. Your normal source for chlorine would be a local chemical distributor. But you might get it from the nearest branch of a manufacturer provided it were just as convenient. The same multiplicity of sources exists for laundries needing bleach, bakeries needing leavening agents, small soap manufacturers needing lye, and large metal working manufacturers needing only small, infrequent lots of pickling acids.

The picture is equally shadowy from the point of view of the chemical manufacturers' sales management. It has no problem about the small number of important customers who take the biggest part of the company's output. They get direct service, technical help, and the personal attention their sales importance demands. The confusion arises in serving the thousands upon thousands of small consumers of the company's products. They are the ones that require much selling time and sales expense. In trade terminology, there are many available distribution channels which can be used to augment the manufacturer's sales force in contacting these small consumers. They include:

• **Distributors** – sometimes called **wholesalers** (or even misnamed **brokers**) are literally customers; they buy for their own account, warehouse the merchandise, maintain their own salesmen, and make their own sales. They may concentrate on a certain group of chemicals such as hydrocarbons, or they may carry all the chemicals required by a single customer industry, such as textiles. If the tie to a specific consuming industry is very close, they may be full-line supply houses from which a customer can get its nonchemical requirements, too.

• Competing with these folks, or supplementing them in special situations, are middlemen who perform only a part of the distribution function. A chemical company which produces only a limited number of products used in a given industry may find it cheaper to employ a **manufacturers' sales agent,** someone already calling on this trade, who also represents nonchemical or noncompeting chemical products. The manufacturers' sales agent carries no stock and may not even handle the invoicing. He is essentially a free-lance salesman compensated on commission.

• His counterpart is the **purchaser's representative** who will lend his knowledge of the market to a buyer

"While this was some time ago, it was again brought to mind last year when speculative resellers became so active during the Korean War shortage scare that the tales of middlemen's quick (and presumably unwarranted) billings spread even beyond the chemical industry. The extended debate indicated just as much confusion in the distribution of industrial chemicals as when I was personally a part of it.

"For some time now, as a management consultant for McKinsey & Company, specializing in distribution, I have studied the marketing apparatus of the chemical industry as well as that of many other major industries. The moral indignation of those chemical manufacturers who assumed that the flurry was due to the emergence of a posse of crooks in their midst, seems to indicate that they do not recognize the interrelationship of manufacturers' distribution policies and the types of middlemen which attach to a marketing system."

"CAM" CASWELL is associated with the firm of McKinsey & Co., consultants on problems of executive management. His special field is marketing and distribution, a fact which brings him in daily contact with the sales policies of companies in many industries. But this broad background, gained during the past five years with McKinsey & Co., comes on top of the experience obtained through eight years in the chemical industry. During that period, he rose from sales trainee, through the eastern sales managership, to Director of Commercial Research for Westvaco Chemical.

for a commission or for the spread between what he can buy for and what his client is willing to pay. Sometimes he calls himself a **broker** (although typically a broker is not tied to either party to the transaction). In order to conceal his margin, he may at times take paper title to the goods, but brokers and purchaser's representatives most often are merely telephone merchants who do not physically handle the merchandise.

• **Jobbers**—(resellers)—while they perform the same limited services as the manufacturer's agent and the purchaser's representative, generally representing no single party at the outset—they tend in the purest sense of the word to be commodity speculators. Thus, since they represent neither party to a chemical transaction, and do not physically handle the goods, they are not an integral part of the distribution function and they participate only in the matter of prices.

This is the source of much of the heat which is generated by each major market dislocation (viz., the Korean scare so widely discussed and documented). However, this is an entirely separate problem and while there is much to be said about brokers' economic participation and about "learning to live with" them, we will not dwell on this purely price aspect of marketing industrial chemicals. It is enough to say in passing that such men are not just parasites. They fill a definite, and needed, function in the leveling out of supply and demand forces. Their existence is the result of, not the cause of, serious commodity imbalances. The prices that they buy and sell at are, in the final analysis, determined by the market, not by the brokers themselves.

WHY THE CONFUSION?

The unclear and generally confused channels of distribution in industrial chemical marketing seems neither inherent nor necessary. It exists in few other major industries.

In steel, to take a basic and mature industry, manufacturers traditionally sell large quantities direct but channel all inquiries for smaller amounts, special products, or quick deliveries to distributors with whom they have built a solid business relationship. Distributors are well established, well qualified to render technical service, and know just where they stand. They perform recognized distribution services for which they are fairly compensated. Over the years, steel manufacturers have learned exactly what steel shapes and what customers can be handled most economically by middlemen.

The manufacturer assists them with sales training courses for salesmen, advice on the management of inventories and stocks, and marketing assistance in terms of referred leads and transferred orders. In return, the wholesaler maintains adequate stocks, solicits and services properly, and expands the market for the manufacturer's products wherever possible. There is no competition between the middleman and the company's salesman because the calls one makes are uneconomical for the other.

As in steel, middlemen exist as a direct result of the manufacturers' specific sales policies in the pipe, building materials, hardware, and other industries.

Order prevails in the distribution of office machinery for the directly opposite reason; the manufacturers have thought through a policy of *no* middlemen. In fact, most heavy office machines aren't even sold to the consumer at all. They are rented out by the manufacturer, who bears the cost and the responsibility for reaching all his customers in the first place and servicing the machines rented to them. Few other manufacturing industries

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"Historically, they have looked upon middlemen as parasites in good times and necessary evils in bad times."

of any size have been able to eliminate the middleman quite so completely.

Chemical Confusion: Why do other industries have a more clean-cut pattern than chemicals? One reason, of course, is the very nature of the products; steel and office machinery can be produced to demand. Many chemicals are by-products of other chemicals; their production depends on the demand for entirely different items. Thus, field inventories and intermediate agencies tend to absorb the imbalances of products necessarily produced out of proportion to current demand.

Another root of the chaos is the continued growth of the chemical industry. More dynamic than steel, more varied than office machinery, chemical manufacturers are both victims and beneficiaries of a research frontier.

New products, new uses for old products, obsolescence of established products, new processes for old products keep the industry too busy to mature its distribution patterns. Intuitively, the chemical manufacturer fears that rigid distribution policies laid down this year might be obsolete next year.

And some part of the situation is due, I believe, to an attitude of some chemical manufacturers. Historically, they have looked upon middlemen as parasites in good times and necessary evils in bad times.

TOWARD A POLICY

The picture is not hopeless, however. Some products of the chemical industry have reached maturity. For some companies these may cover a large part of their output. The chemical industry's intrinsic, characteristic multiplicity of product line and rapid change does not rule out a rational consideration of the distribution problem in connection with such mature products.

In considering this situation, sales management may profit by first reviewing the basic principles of distribution.

In doing this, they should consider every category of sales they make in terms of the advantages and disadvantages of using middlemen—*whether or not* adequate middlemen exist to do the job today. While this may sound theoretical, it is a proper basis for policy making; an engineer does not give up the prospect of using a certain tool simply because such a tool is not currently available.

Secondly, it is neither wise nor necessary to consider that the answer will be all black or all white; it is highly unlikely that all products or all markets should be reached through the same distribution channels.

Pros and Cons: Each sales manager will have different considerations in deciding which of his products and markets should be sold direct and which through middlemen, but the following general yardstick of advantages and disadvantages may prove helpful as a check list:

√ Could a middleman reduce selling expense? The question must be answered after consideration of all the elements of selling expense. Are there so many small orders that paperwork itself is a burden? Are orders so small that less than carload freight rates are frequently necessary?

√ How much would it be possible to save if a distributor geographically closer to the market maintained a warehouse from which small orders could be filled? Is this more or less than the expense of maintaining a branch warehouse to serve the volume of business in each territory?

√ What about credit expense and loss? Is it possible to know all the small customers well enough to carry this risk economically, or could a middleman closer to the consumer do it more efficiently?

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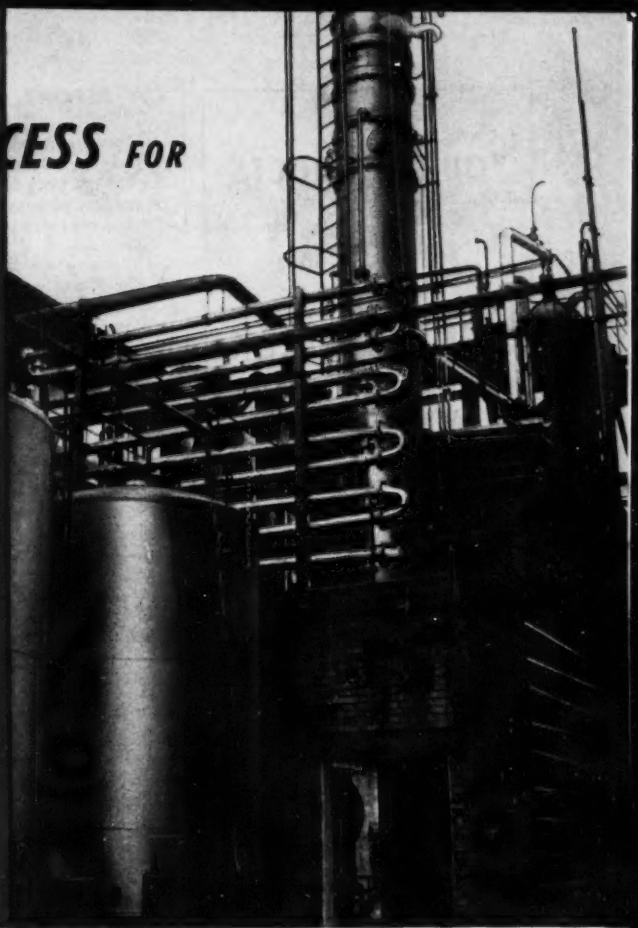

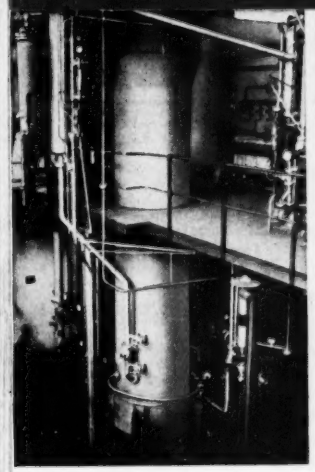

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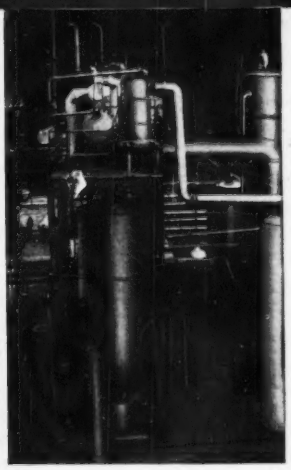

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√Would a middleman simplify the plant inventory problem by carrying enough stock to absorb the shocks of sudden, perhaps local, increases or decreases in demand?

√Would a middleman of the right kind increase sales? The middleman can see more customers and smaller customers if he carries other products they need; he can know them better; he is nearer than the manufacturer's salesman when service is required.

The advantages of middlemen to the customer must be considered in weighing whether the middleman would actually increase sales. Small businesses can increase their volume by reducing inventory expense when a source of supply is handy. More customers might be tempted to buy and customers might buy more because they would be more frequently solicited and offered more liberal credit terms than the company salesman can extend.

√How competitive is the item? Is there a possibility that the middleman might get to control the customers so that he could switch a large block of business to another manufacturer? Is the margin of profit such that the middleman would find it profitable to push the item?

√How much technical assistance does the customer need on this particular item? Maybe no middleman now in existence is giving it, but could they reasonably be trained to give it?

WHAT KIND OF MAN?

The answers to these questions may indicate the desirability of a middleman for the large number of orders for commodity type chemicals which ordinarily represent a small portion of a manufacturer's sales volume. The next question, and a focal one in the present state of the industry, is just what kind of middleman is needed for each situation? When one looks at function instead of terminology and analyzes the existing middlemen according to the American Marketing Association's definitions for industry in general, the confusing variety of chemical middlemen fall into three simple categories:

1. **Merchant middlemen,** according to the AMA, buy and sell on their own account and maintain stocks. They distribute goods physically as well as linking buyer and seller in the transaction. The chemical market may call them distributors, wholesalers, suppliers, or jobbers.

2. **Brokers,** in the AMA's book, represent either the purchaser or the seller in effecting a sale. They take neither title nor physical possession of the goods. In the chemical industry, middlemen who perform this function may call themselves manufacturers' sales agents, purchaser's agents, brokers, or jobbers.

3. **Agent middlemen,** according to AMA definition, negotiate the sale without originally representing either purchaser or seller. They may take

Source of Confusion

AMA Terms	Takes Title	Takes Possession	Chemical Industry Terms
Agent Middleman	Sometimes	No	Jobber Broker (Reseller)
Broker	No	No	Manufacturers' agent Purchaser's agent Broker Jobber
Merchant Middleman	Yes	Yes	Distributor Supplier Jobber Reseller

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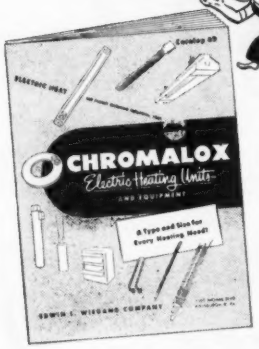

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"Middlemen are so essential that if they did not exist, they would evolve to fill the economic void."

paper title to the goods but they do not take physical possession of it. In the chemical business, middlemen who perform this service generally also call themselves jobbers or brokers.

In studying the problem of selling and physically distributing industrial chemicals, sales management can limit its consideration to the first two, for the agent middleman, the *speculative* broker or reseller, is involved in only the *price* element of the economic balance of supply and demand. (While this is important and probably inherent under the semirigid price patterns of the industry, it is, as stated above, a separate topic and beyond the scope of this discussion.)

The merchant middleman (generally called a "distributor" in the chemical industry) will probably serve the purposes of most manufacturers who find it uneconomical to solicit and serve given areas or industries.

The agent middleman of the "manufacturers' representative" type may in certain circumstances have his place also. This is particularly likely in the case of a specialized industry with products requiring some technical competence.

CREATING MIDDLEMEN

Once the need, and the function, of middlemen are determined, it is possible to encourage responsible people to assume these functions. Study of the relations between manufacturers and distributors in industries where they work well should prove rewarding.

The key points which typify such satisfactory relationships include:

- A clear definition of the area and industries which are to be the distributor's province. This does not always mean an exclusive franchise—often it merely states where and under what circumstances the distributor is expected to operate.
- A mutual understanding of and respect for the economics of distributing through the middleman; why he can do certain things better or cheaper.
- A definite termination agreement, fair to both parties.
- An understanding about when, under what circumstances, and why small customers, who have grown large, will revert to the manufacturer when the economics require it. Such an understanding would go far in eliminating the friction which often is generated by the manufacturer's insistence on being supplied with copies of all invoices. The latter needs these to maintain effective market records. Unfortunately, the distributor tends to consider that he will thereby stand to lose any good accounts he may be able to develop.
- An agreed-upon, distributor-maintained field inventory sufficient to adequately serve the specified trade yet realistic in terms of a distributor's finances.
- Assistance and training of a distributor's sales and service personnel by the manufacturer's staff, often including attendance at sales meetings.
- A variety of little things to make the distributor and his personnel feel a part of the manufacturer's operation: plant trips, sales bulletins, referred leads, cooperative field trips, etc.
- Above all a genuine mutual respect based on obviously sound economics.

Middlemen are so essential to the distribution of industrial chemicals that if they did not exist, they would evolve to fill the economic void. Other industries prove that suitable middleman agencies can be found or developed if their functions are clear, their duties defined, and their position made respectable. The more clearly the chemical industry understands these axioms, the more satisfactory its middlemen are likely to become, and the less confusing its distribution patterns will be.

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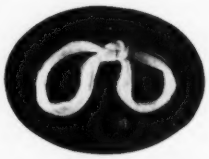

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A broad new application for sequestering agents is taking shape in Florida's citrus-growing country.

Research has proved the value of EDTA complexes in countering a crippling nutritional disorder of citrus trees.

But several important angles must be explored; producers are proceeding cautiously in developing the outlet.

Producers of sequestering agents are eyeing the sunny South these days with something more than average seasonal interest: Among the orange blossoms of Florida's citrus groves, the outline of a substantial market for their wares is slowly taking shape. This is clearly pointed up in the newest results of a neat bit of work by Ivan Stewart and C. D. Leonard of Florida Citrus Experiment Station (Lake Alfred).

Stewart and Leonard are probing the causes and cure of iron chlorosis —a crippling and often fatal disorder of citrus trees. The condition, caused by a deficiency of iron, now claims the dubious distinction of being the most important nutritional problem in growing Florida citrus. And it's more than just a local problem. Hardly a major fruit growing area in the world has escaped its damaging effects.

But, thanks to the Experiment Station researchers, the prognosis is highly promising. With the aid of iron complexes of ethylenediamine tetraacetic acid (EDTA) they have succeeded in reversing the debilitating symptoms of the disease, have obtained a five- to ten-fold increased yield of fruit from severely chlorotic cases.

On the surface, the iron chlorosis problem appears to be disarmingly simple. If iron is all that a sick tree needs, surely there are less costly, less complicated iron compounds than the EDTA complex. For example, why not iron sulfate?

No Pick-Up: The answer, in the words of Stewart and Leonard, is this: "Iron deficiency is the most difficult of all nutritional deficiencies to correct. Soil treatments and spraying are usually ineffective . . . Iron apparently is not taken up from the soil when supplied in the common commercial forms." Moreover, spraying with solutions of the sulfate, oxalate or oxide is not significantly effective.

Obviously, then, there's more to it than just dumping iron into the soil or spraying it on the leaves of chlorotic trees. As a matter of fact, iron deficiency symptoms in plants don't even necessarily mean that there is a lack of iron in the soil.

Relatively large amounts of heavy metals and phosphorus (which ties up

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iron making it relatively unavailable to plants) are often associated with iron deficiency. It's not the mere presence of iron that's important; it's the presence of iron in a form that the plant can utilize. And that's where EDTA comes in.

Salts of EDTA chelate iron, preserve the metal in a stable complex from which it is easily taken up by citrus trees. Stewart and Leonard applied various iron chelates to the soil around chlorotic trees last winter with rewarding results. They report that the sickly, discolored leaves regained a healthy green color about six weeks after treatment. And "in the spring many of the treated trees put out new growth and bloomed three weeks before the untreated ones." The newly disclosed increase in fruit yield would appear to be the clincher.

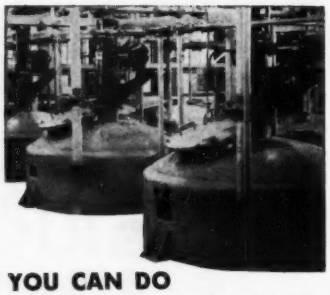
Bug Proof: Aside from its marked chelating prowess, EDTA has other desirable qualifications for its new job. Most important, perhaps, is the ability to withstand microbial attack. Other complexing agents might serve equally well as iron carriers. Citric acid, for example, is widely used in plant nutrient solutions as a source of iron. But citrate ion is readily attacked by microorganisms in the soil, would not fare well under practical field conditions.

In the first trials at Lake Alfred, the iron-EDTA complex was applied in solution around chlorotic trees. Good results were also obtained by incorporating these liquids into Attaclay and vermiculite and applying in dry form. Florida Citrus Experiment Station researchers report that new dry iron chelates are now being tested for effectiveness in fertilizers. The dry iron-EDTA chelate contains from 8% to 13% iron, costs about 30¢ per treatment (⅓ of a pound) per tree.

Manufacturers of EDTA and its salts are, naturally, keeping close tabs on the research at Lake Alfred. Geigy Co., Inc. and Alrose Chemical Co. (a Geigy Co.) have supplied researchers with experimental quantities of iron-EDTA, are now offering their Sequestrene NaFe complex in one to twenty pound samples. Bersworth Chemical Co. (Framingham, Mass.) is out with

Finishing the First Five

E. A. G. LIDDIARD, director of research at England's Fulmer Research Institute, plays host to guests Lord Waverly (*center*) and Sir William Stainer (*right*) on its fifth anniversary. Metallurgy is a Fulmer specialty; center of attention is a set-up for the preparation of titanium by indirect distillation. The Institute also conducts sponsored investigations in chemistry, physics and ceramics. A non-profit organization, Fulmer boasts some of the most modern scientific facilities in England.



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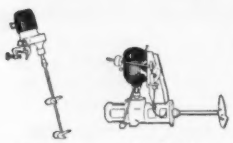

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Ferrogreen, an iron complex of its Versene sequestering agent. Antara Chemicals (Div. of General Dyestuff Corp.) is scouting the field, could come in with Nullapon B (EDTA) as a raw material, or its own finished complex.

Obviously, a number of angles on the agricultural application of metal chelates have yet to be investigated. Long-term toxicity to the tree is one outstanding case in point. The effects of large doses is another. Eager to get their new products off on the right foot, manufacturers strongly caution customers to follow Citrus Experiment Station instructions for using the chelates. Bersworth, in fact, has an agriculturist in the Florida citrus country to oversee the use of Ferrogreen.

Further research is needed. And it could pay handsome dividends. The role of chelates in other nutritional crop diseases, their value as carriers for trace elements which now cannot be applied effectively to the soil are latent, but potentially profitable areas for development.

•

Isotopes by the Pound: A new radiation source, installed at General Electric-operated Knolls Atomic Power Laboratory, is stocked with 2½ pounds of cobalt-60. The highly intense radiation is needed for the Laboratory's work on the design and construction of a full-scale model of an atomic power plant for submarines.

•

New Quats: Two new quaternary ammonium salts are now available from Industrial Division of Onyx Oil & Chemical Co. (Jersey City, N.J.). They have been tagged BTC 471 and BTC 927. The former is an alkyl dimethyl ethylbenzyl ammonium chloride, supplied in 50% aqueous solution or 82.5% alcoholic solution. BTC 927, an alkyl dimethylbenzyl ammonium chloride, is available in 50% aqueous solution. Both have potential outlets in deodorant-sanitizer applications.

•

Solvent Debut: First commercial quantities of two new solvents, 3-methoxybutyl acetate and 3-methoxybutyl alcohol, may be had from Tennessee Eastman Co. Both are recommended as high-boiling lacquer solvents. The alcohol is suggested as a replacement for medium boiling alcohols (e.g. normal butyl) in lacquer formulations. The acetate has a potential market in automotive and hot spray lacquers.

•

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RESEARCH. . . . . .

Instituto Superiore di Sanita (Rome) report a rapid method for determining penicillin in culture fluids or crude preparations: The antibiotic is extracted from aqueous solution with amyl acetate at pH 2. An aliquot of the amyl acetate extract is further extracted with a known volume of phosphate buffer at pH 7. Penicillin is assayed by iodometric titration.

•

New Prep: Current high interest in polyvinyl pyrrolidone as a blood plasma extender has sparked the development of a new synthesis for the monomer, N-vinyl-2-pyrrolidone, by researchers of Schenley Laboratories. The Schenley synthesis gets around the hazards of acetylene and high pressures. Here's how it's done: Ethanolamine and butyrolactone interact over dehydration catalysts to give N-(β-hydroxyethyl)-2-pyrrolidone. Vinyl pyrrolidone is obtained by dehydrohalogenating the corresponding chloro derivative with sodium methoxide.

•

Specific for Iron: Researchers of University of Illinois have discovered a specific reagent for iron in 4,7-diphenyl-1,10-phenanthroline. It gives a characteristic color with as little as 1 to 10 micrograms of iron in 100 ml of water. Copper does not interfere. The new reagent was successfully applied to determinations of the iron content of samples of raw and purified waters provided by municipalities.

•

Adhesion Probe: Researchers of Case Institute of Technology have received a research contract of $30,000 from Chemistry Research Branch of Air Research and Development Command (Dayton, Ohio), for a study of the fundamental causes of adhesion.

•

Built for Blood: Plastic bags now threaten the position of glass bottles as containers for whole blood for the armed forces. The bags are made of polyvinyl chloride, are inert to biological fluids. Tests by armed forces pathologists show that it takes a few minutes longer to draw blood, but the blood is preserved better in the plastic than in glass.

•

Add Eleven: The list of more than 3,500 organic chemicals supplied by Distillation Products Industries (Div. of Eastman Kodak Co.) has just been extended by the addition of eleven newcomers. Among the new compounds are m-aminoacetophenone, 4-chloro-2-nitroanisole, diethyl methyloxalacetate, sebacyl chloride and reagents for the determination of thorium and of elemental sulfur.

RESEARCH . . . . . .

Magnamycin Follow-Up: Here's up-to-the-minute information on the evaluation of magnamycin, Chas. Pfizer & Co.'s new broad-spectrum antibiotic. First clinical results, with approximately 100 cases, generally confirm earlier experimental observation of the drug's activity against certain penicillin-resistant bacteria. The drug was administered by mouth in each case. However, the antibiotic has been injected into laboratory animals with no apparent untoward consequences.

•

New Smasher: Argonne National Laboratory (Chicago) boasts the nation's newest atom-smasher—a 60-inch constant frequency cyclotron. Designed and constructed by Collins Radio Co. (Cedar Rapids, Iowa), the machine cost $966,456, is especially well suited for radioisotope production and the study of nuclear reactions.

•

Polio Hope: A crucial milestone in the fight against poliomyelitis has been passed by researchers of Lederle Laboratories Div. (American Cyanamid Co.). Lederle workers have developed what looks like the first effective anti-polio vaccine. The new Lederle vaccine does not afford blanket polio protection, is effective against only one (the Lansing strain) of the three known strains of virus which cause the disease. Key to the welcome achievement is a method of cultivating the virus in chick embryos. Commercial production of the vaccine probably won't begin for a year or more.

•

Inorganic Shift: Barrett Div., Allied Chemical and Dye Corp., has put a reported $475,000 on the line for Sharp & Dohme, Inc.'s main Glenolden (Pa.) laboratory building. Barrett will shift its inorganic chemistry research from Philadelphia to the new site. It's part of a move to expand the company's Eastern laboratory facilities.

•

Cousins: A remarkable similarity between Lederle Laboratories' aureomycin and Chas. Pfizer's terramycin is evident from recent revelations of the structures of the two antibiotics. Both possess the naphthacene skeleton. But aureomycin has an aromatic chlorine atom not found in terramycin. Terramycin, on the other hand, is exclusive owner of a hydroxyl group. Pfizer researchers suggest the name "tetracycline" to denote the structure common to both antibiotics; terramycin would then be called oxytetracycline.

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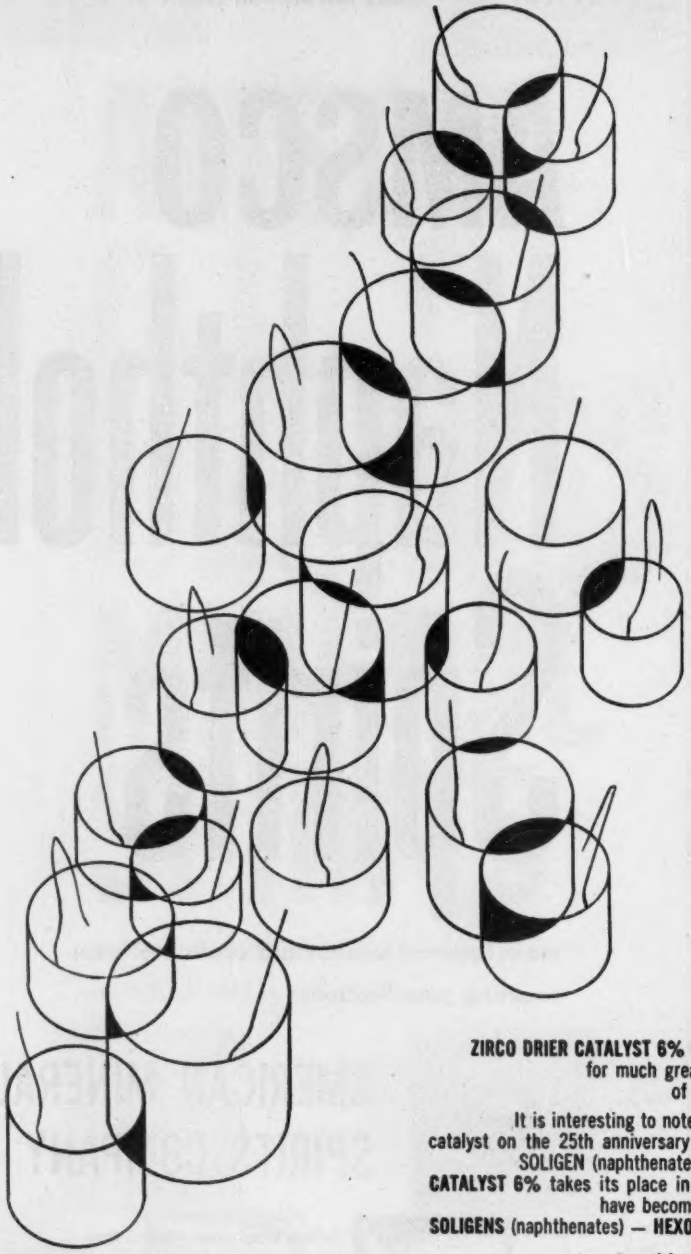

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PRODUCTION . .
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Life for the production man is smoother now than at any time since the start of the Korean conflict.

But manpower is still scarce, and although the supply of equipment has picked up, some types are still tight.

In many cases, a shift to a buyer's market for chemicals has caused a sharp switch in worries for the plant man.

Maybe it's only cold comfort, for certainly the situation is bright although more by contrast with the grim one that prevailed this time last year than by any other norm. Nevertheless, this fact was clearly pointed out in CW's latest survey: Production men have fewer harrowing worries this week than they've had at any time since the outbreak of hostilities in Korea.

Life, of course, is still no bed of roses for many of them. They're plagued by a number of persistent headaches—a manpower shortage at most levels, a shortage of some materials of construction and some types of equipment, worries on scheduling and quality control. For the most part, however, the worries that remain do not affect day-to-day operations, even though, as one plant manager put it, "They can play hob with your long range planning."

Manpower, Number One: The shortage of manpower is chronic. It's rated by the overwhelming majority of the men queried, as their number one headache. One production executive from the Cleveland area says he spends more time worrying about men than about anything else—and he's been feeling the same way for years. His main concern: foremen.

Several complain of a shortage of maintenance men. The most commonly advanced reason is that skilled workers are leaving the plant for better paying jobs in the construction field.

The shortage of engineers gives no promise of being improved. And according to one production man in the Southwest, it's especially acute in the petrochemical industry. He puts it like this: "Experienced technical personnel are hard to get for petrochemical work. They need more specialized knowledge than do men for

Putting the Wraps On

FOR QUICK PIPE WRAPPING jobs in the field or in inaccessible locations, Minnesota Mining and Manufacturing (Minneapolis) has brought out two new corrosion resistant tapes. According to 3M, the tapes combine the corrosion resistance of polyvinyl chloride with the ease of application of pressure sensitive tapes, can be applied by regular pipeline crews.

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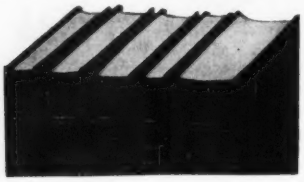

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heavy chemical jobs. There are very few engineers with a solid background of petrochemical experience. And the ones that are available want to be paid well for their services."

Another fairly common plaint is that there is enough help available but it isn't the right quality. One Midwestern production v.p. says, "We aren't short of help, but there is no one knocking at the gate looking for a job. The workers we have are not always as good as we'd like."

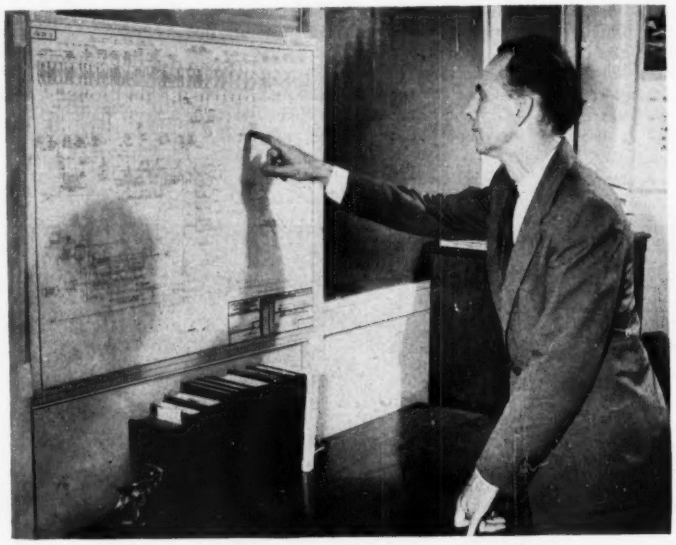
An Eastern plant man echoes the same sentiment when he says, "We're not short on help right now, in fact we're a little long. Our chief problem is labor relations. We'll probably have to live with that until times get a little tougher and labor becomes more competitive."

A Western plant manager takes a slightly different view on the quality of his labor force. "Day-to-day labor efficiency," he says, "is nothing to brag about, but when an emergency comes up the men turn themselves inside-out to do a good job. That's the most gratifying aspect of the whole business."

Another optimistic note comes from an Eastern vice president of production who says, "College grads today seem to be better trained than the ones five years ago. We need young men to replace older workers getting ready to retire and to take over new jobs created by our expansion program. We're giving younger men more responsibility and it's paying off."

Equipment, Easier: There is almost unanimous agreement that the supply of most types of equipment has improved considerably. The steel strike, of course, put many companies three to four months behind on schedules for new construction. And some process equipment—mainly bigger pieces—is so slow on delivery that by the time it is ready, the economic picture and the firm's budget may have drastically altered.

Illustrating the point, one chief engineer complains he hasn't been able



Dilution, Not Pollution

WATER CARRYING industrial wastes from U.S. Steel's mammoth new Fairless Works in Morrisville (Pa.) will be clearer than the Delaware River it empties into, thanks to the intricate waste treatment system built for the plant by Hydrotechnic Corp. (New York City). At least, that's the prediction of Hugh Mac Dougall, chief engineer for Hydrotechnic, who's shown pointing to the detailed flow sheet of the system. It's approved by the Pennsylvania State Board of Health. The Fairless Works is the biggest integrated steel mill ever built at one time and the first with a built-in waste disposal system. Costs for the waste treatment ran into several million dollars, but it would have cost half again as much if it had been installed piecemeal after the mill had been finished. One feature: The waste is put to work wherever possible. For instance, alkaline wastes neutralize acid wastes, acid wastes dissolve scale sediment.

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to stay within his budget on new construction for two and a half years. Another adds that the changing outlook tends to kill enthusiasm for new products and new processes.

Nickel for tubings and fittings is still critically short in spite of allotments and directives. The same is true for stainless steels and chrome. Also, there's no perceptible improvement in the supply of electrical equipment—like switchgears, starters, starter boxes—that have been short since the end of the last war.

A shortage of tank cars also poses a pressing problem for many production men. What's more the shortage is getting worse with the approach of winter. As an example of the changes that occur in this type of equipment: A big chemical company ordered 35 pressure tank cars for delivery around the end of this year. Then, early this summer, the tank car maker approached the buyer saying that the cars were ready for immediate delivery. But the firm could only take ten. Now, needing ten more, it can't get them.

But emphasizing the bright side of the equipment picture, one Midwest plant manager says: "It's easier to get and we have little trouble. In most cases, we get it ahead of forecast date. Some stainless is hard to get though."

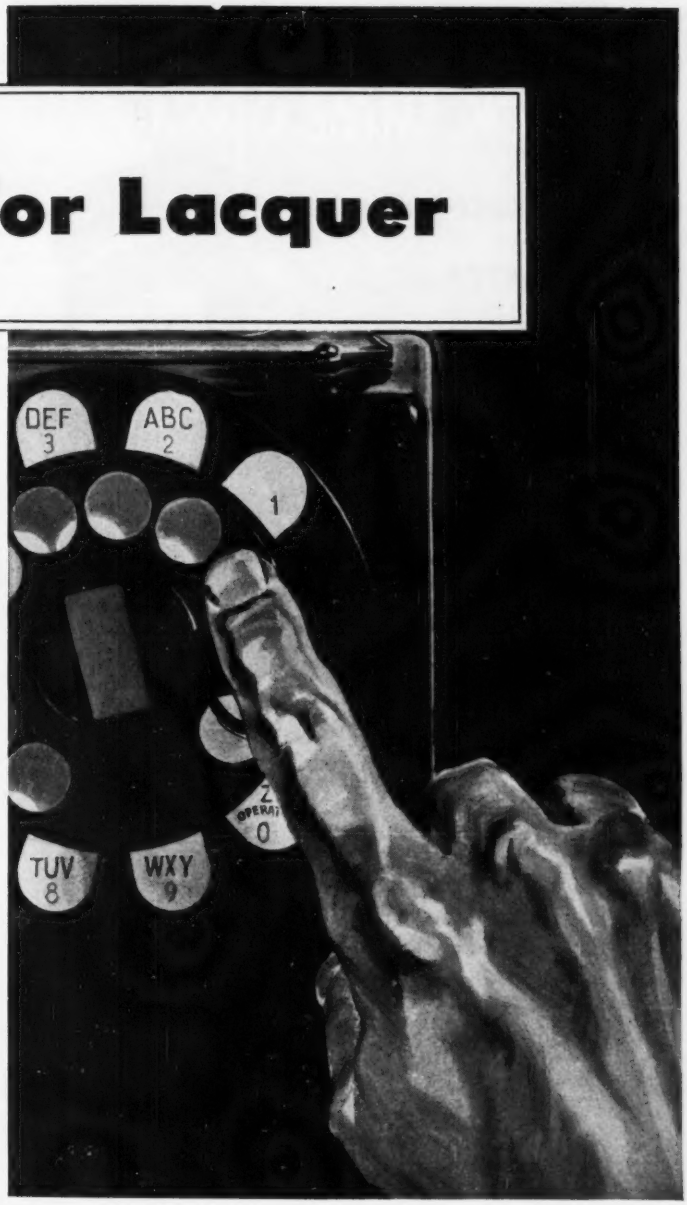
In the same vein, an Eastern plant manager says, "Equipment is no problem. But it takes a long time to get. There's really no hitch to getting equipment; it's simply a case of knowing your needs far enough in advance."

Following the Market: The slump in some aspects of the chemical market has caused a sharp shift in the worries of production men. Several say that whereas last year the emphasis was on quantity production, now the accent is on quality and they've had to realign their quality control programs.

A plant manager in the Southwest, for example, says there is now a buyer's market for most of his products. As a result, he's had to lay off some of his labor force, adjust his raw materials needs, reschedule his entire operation to meet the reduced demand.

Another vice president from the Midwest with the same worry claims that below-capacity operations create several tough problems. Says he: "First, it's hard to explain to the men in the down departments why their operations have been cut back when they can see many earning overtime in departments that are still going full

Calls For Lacquer



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Acid number	201-206
Saponification number	202-207
Titre	58-61°C.
Color	White

This high-grade, white fatty acid is extremely stable against oxidation and rancidity... keeps its white color even at relatively high temperatures. Suitable for light-colored esters, candles, greases.

Try HYDROFOL ACIDS 410 when making end products where color is important. Other hydrogenated tallow fatty acids in the HYDROFOL series are HYDROFOL ACIDS 400, 405, 420.

Hydrofol

SAMPLES of each of these products, and prices, are available on request.

ACIDS • GLYCERIDES • SPERM OILS • ALCOHOLS
FROM VEGETABLE • ANIMAL • MARINE OILS AND FATS

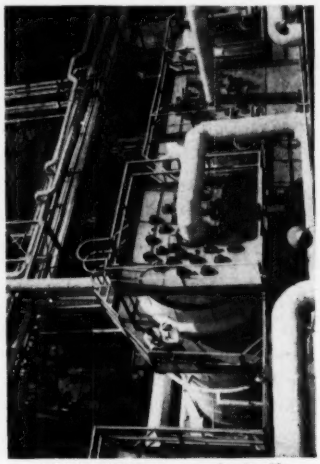
Produced In Any Quantity From SAMPLES TO SHIPLOADS

ARCHER • DANIELS • MIDLAND COMPANY
Chemical Products Division • 2191 West 110th St. • Cleveland 2, Ohio

tilt. Second, scheduling problems arise. Third, we're in a selling period now when operating efficiency and materials efficiency must be stepped up. Since sales are slow, the sales department is forever demanding better quality. They dump the problem right in our laps."

Another plant manager from the East put his finger on the same problem. He expressed it this way: "I don't have any problems that a little more sales couldn't cure."

On the whole, though, it's clear that while few would be willing to state that "they never had it so good," almost all were ready to admit that "they've had it a lot worse."



SUN'S UNIT: It pays for itself.

Salvaged Wastes

Sun Oil's second catalytic waste-burning unit* at its Marcus Hook (Pa.) refinery is proving more successful than its first. The first one did its job but its life was short and maintenance costs high. The second was installed last June and according to Sun, there's been no noticeable loss of life, practically no maintenance.

What's more, Sun reports the installation is recovering some 7.5 million btu.'s per hour, a saving of about $27,500 a year or just a little more than the cost of the catalyst. More extensive installations at Marcus Hook and the Toledo (Ohio) refinery may push the savings to $500,000 says Sun.

The unit burns waste carbon monoxide and hydrocarbons from cracking units. About 80% is converted to process steam, the rest is used to generate electricity.

* Catalysts for both were developed by Eugene Houdry who developed the second one for use on industrial trucks *(CIW, Jan. 27, '51)*, received a spate of publicity on it as a result of a law suit in Allentown, Pa. *(CW, June 7)*.

The De Nora Cells At
MUSCLE SHOALS

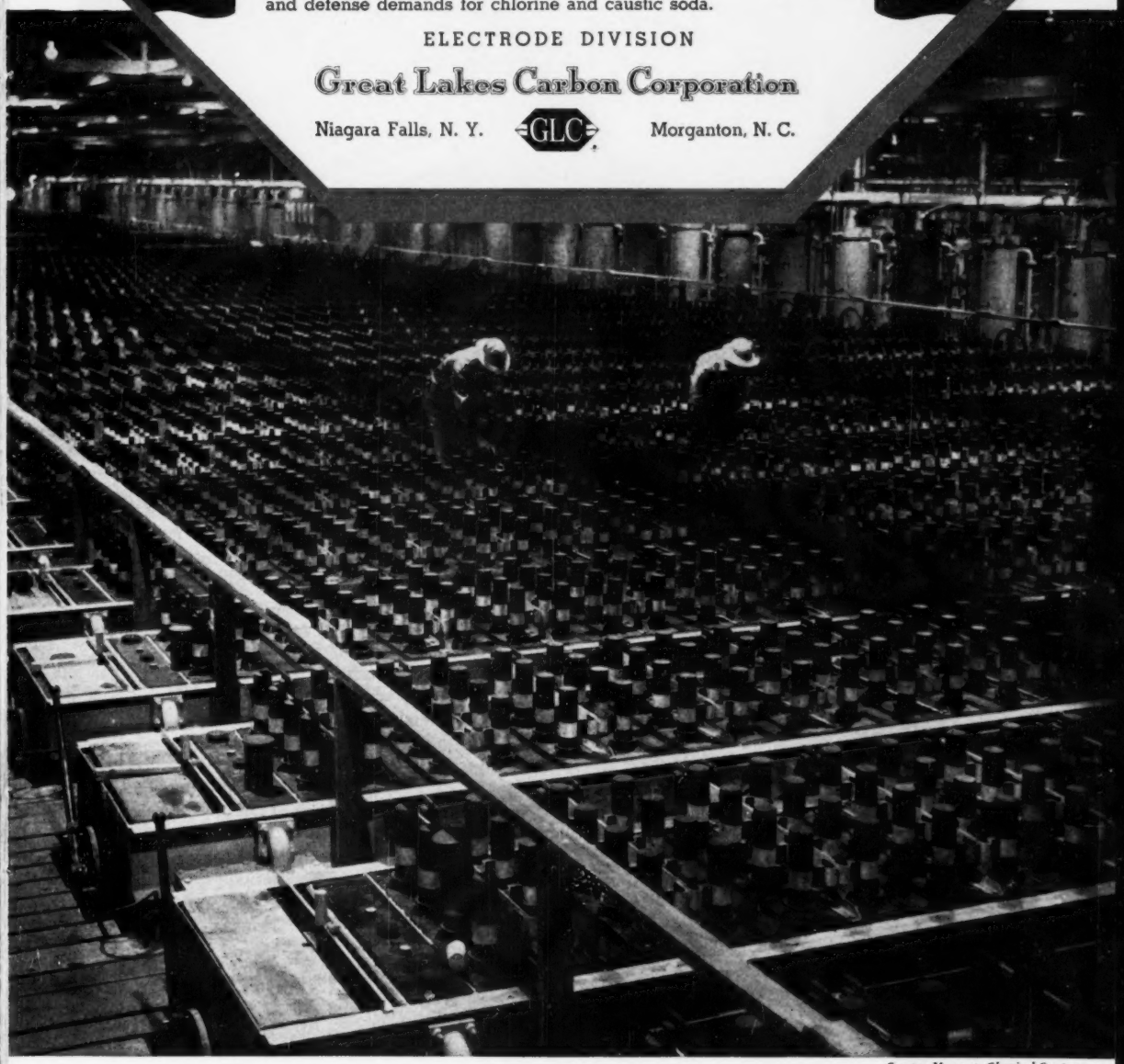
The De Nora cells at the new Government-owned, Monsanto-operated chlorine plant, Muscle Shoals, Alabama, are eloquent testimony to chemical engineering progress.

Uniformly high quality GLC GRAPHITE ANODES are doing their share to help the electrolytic industry meet the ever-increasing civilian and defense demands for chlorine and caustic soda.

ELECTRODE DIVISION

Great Lakes Carbon Corporation

Niagara Falls, N. Y. GLC Morganton, N. C.

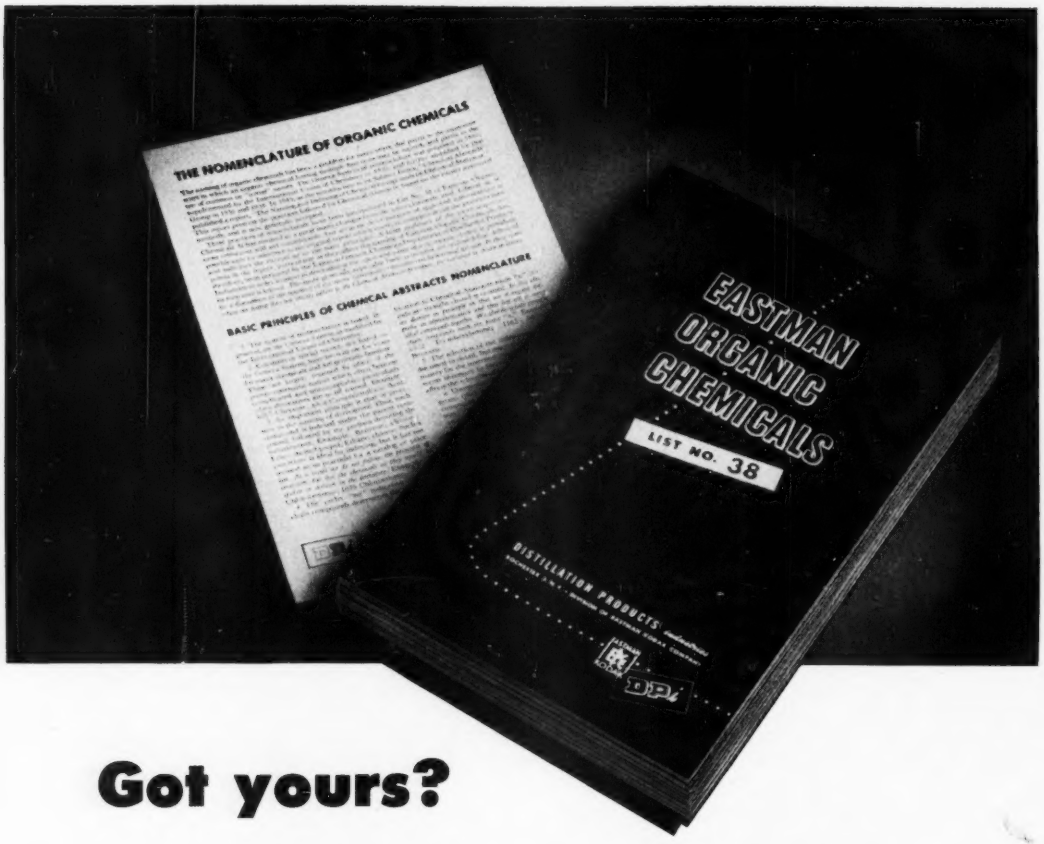


Courtesy Monsanto Chemical Company

Graphite Anodes, Electrodes and Specialties

Sales office: Niagara Falls, N. Y. **Other offices:** New York, N. Y., Chicago, Ill., Pittsburgh, Pa.

Sales Agents: J. B. Hayes, Birmingham, Ala., George O'Hara, Long Beach, Cal., Great Northern Carbon & Chemical Co. Ltd., Montreal, Canada.



Got yours?

Just issued is a new edition of the Eastman Organic Chemicals catalog, an essential tool for all concerned with chemistry.

There are many changes.

New chemicals. 256 of them new to this edition. More than 3500 listings in all.

New names. A great many revisions to conform to *Chemical Abstracts* nomenclature, now accorded wide acceptance by the world's chemists. To help over the transition, we have included with the catalog an 8-page summary of how we use this naming system.

New sizes. For faster service, we're now stocking just two package sizes for each item.

But everything you've previously found valuable in the Eastman catalog is still there. The molecular weights, the structural formulas, the melting or boiling ranges. The lists of special reagents, "spot test" reagents, pH indicators, liquids for refractive index determination, amino acids, sugars, alkaloids, vitamins. And a chart of infrared "windows" and ultraviolet cutoffs for our new spectrophotometric solvents.

You ought to let us know if by now you haven't at your disposal a copy of List No. 38. *Distillation Products Industries,* Eastman Organic Chemicals Department, Rochester 3, N.Y. (Division of Eastman Kodak Company).

DPi

Eastman Organic Chemicals

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Also . . . vitamins A and E in bulk . . . distilled monoglycerides . . . high vacuum equipment

SPECIALTIES . .

Coming Up on the Inside

Can lining materials—nearly a million gallons of them—are applied to the 30 billion cans used in the United States yearly.

Upcoming coatings are based on epoxy resins, usually in combination with phenolics. But cost is a hold-back to extensive application now.

Oleoresinous enamels are the old standbys, and with vinyl and phenolic materials, they have cut the tin-for-plating requirements to less than a fourth of past needs.

A metal container for liquid synthetic detergents—colorful, lightweight, shatterproof. It sounds good to several major soap makers; its success or failure will likely depend on development of a satisfactory interior coating material.

Already nearly a million gallons of varnishes, lacquers and enamels are coated on the interiors of the 30-plus billion annually used cans. Skilfully devised lining formulations have permitted a widening variety of can-packaged products. There are still no universally applicable interior coatings, but recently developed epoxy-ester and epoxy-phenolic films show an intriguingly broad band of applications.

The low solubility of the epoxy films, even to liquid detergents, has suggested their use where cost is not too important. For industrial use, a formulation based on Shell Chemical Corp.'s Epons and General Electric's R 108 phenolic resin has been developed by the Batelle Memorial Institute for the Steel Shipping Container Institute. It is called Synthetazine 100, and has been licensed to several major paint companies; container makers use it on 5-55 gallon drums.

It seems likely that at present more epoxy-based films are required for the exteriors of can in the food and related products fields. Pacific Can Co. has pioneered the use of an Epon coating for the outside of beer cans, produces about 1500 gal./month for this. But until the cost (raw material costs are more than commonly used materials) comes down, and that doesn't appear likely soon, uses will be somewhat limited.

Federal Finger: Considering the importance of can linings to food preservation, Government action regarding such materials has been limited—largely due to the "tremendous amount of work" of the leading can manufacturers in thoroughly testing lining materials.

With its concern about chemicals in foods, however, the ubiquitous Delaney Committee has touched upon can linings. Now, official policy permits, and will probably continue to permit, use of any lining material as long as it doesn't leach out and adulterate food. The Food and Drug Administration oversees most of the testing of linings; it has published no official standards, and has no "approval" labels for linings.

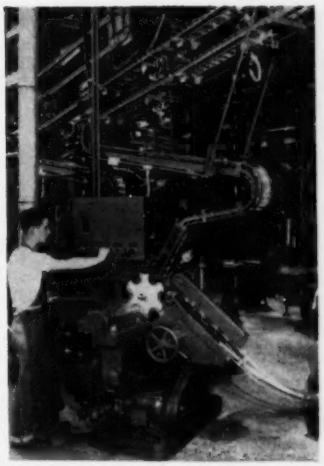
The USDA's Bureau of Animal Industry also takes an interest in canning. The Bureau's Meat Inspection Division maintains a close watch on meat packers, and though its standards have not been published, it pushes development of better coatings.

Plenty, but Thin: Although industry sources vary considerably, the total number of so-called tin cans filled annually probably exceeds 30 billion.* The major portion of these is for food and related uses (beer can consumption may touch 7 billion this year), so that in spite of the thinness (0.0005-0.00005 in.) of the enamels, a large quantity is required.

One estimate places the coating weight in the ordinary No. 2 food can at 340 mg. per can. At the low cost of $2.00 per gallon for the cheapest enamels, better than $1.6 million worth of coatings is applied to the nation's 20 billion food cans.

But not all cans are coated with the relatively inexpensive sanitary† enamels. Phenolics, vinyls, epoxies, and so-called "C" enamels (essentially sanitary enamels formulated with zinc oxide paste, originally to make them resistant to the sulfur in corn) make up the major portion of the can linings business.

The typical beer can, for example, has a two-coat lining to protect the flavor of beer. The first coat is an oleoresinous one, applied before the can is fabricated, and baked on at 400F. (One beer can maker uses a phenolic undercoating for the can bodies, oleoresinous for the ends.) The can bodies are formed, then sprayed (*see cut*) with the taste-free vinyl lacquer, as are the container ends. This coating system, basically the American Can Co's Keglining, requires about 1 pound of base coating, and 7½ pounds of vinyl spray coating per 1000 cans. Can cost to packager totals about $30 per 1000, the majority of the cost being the tin plate, and including exterior decorating.



CAN SPRAYER: Vinyl coating for 7 billion beer cans.

Problems, Solutions: The final vinyl spraying of beer cans illustrates some of the problems in devising a suitable coating. Ideally, the coating would be roller coated on the mild steel sheet. There are several desirable qualities of a satisfactory coating. It must be

- non-toxic, odor- and flavor-free‡;
- non-soluble and resistant to the products it is used with;
- readily applied and baked on in ordinary can fabricating machinery;
- resistant to the mechanical actions of the can-making machinery; and
- economical.

Limitations on the can linings vary: With the Epon types, it is cost. The oleoresinous materials, somewhat softened by oil, lack the impermeability of the phenolic types. Phenolics, sulfide-resistant and competitors of the "C" enamels for packing materials like corn and other protein-containing materials, are brittle and difficult to apply in a suitably thick coating (2 mg. per sq.

* There are close to 80 can manufacturers. Continental Can Co., and American Can Co. have an estimated 80% of the business.

† Term sanitary refers to the common, petroleum hydrocarbon resin-based enamels; resin, cooked with a vegetable drying oil, makes a cheap, taste-free varnish for use with fruit and acid vegetables.

‡ Enamels have been accused of imparting flavor to tomato juice—tests show that the preferred flavor is due to small quantities of tin in the juice.

in. is often all that can be coated on). The new R 108 of GE, used along with Epons and still under test in some applications, is more flexible, and allows application of heavier coats than most phenolics.

Tough and flavor-free vinyls are usually used with materials pasteurized at temperatures less than 200F, and will often develop a white "blush" in the presence of water at temperatures above 200F. Waxes, inexpensive, are temperature-sensitive, and the common approach to overcome this—a higher-melting point wax—frequently results in brittleness.

Thin Tin: Much attention was turned to organic can lining during the last war, when supplies of tin became short. At the time, most standard dip-coated plate had about 1½ pounds of tin per "base box" (31,360 sq. in.). Electrolytic processes for plating on tin have cut this down to ¼ pound per base box stock for many uses. Nevertheless, about half the total U. S. tin imports go into can manufacture.

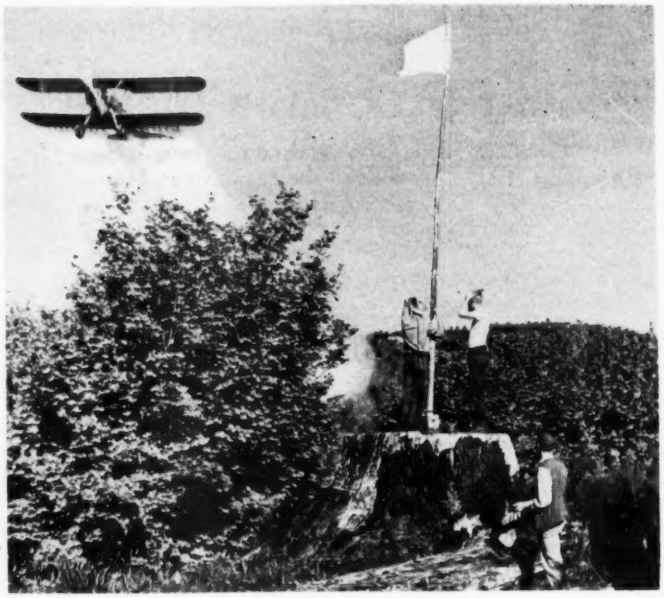
The heavier coated materials are still generally used for packing meat products. Factors that lead to this choice are the high fat content of many meats, and the practice of using scored cans—the type that are key-opened. The heavy tin coating has given more satisfactory service than enameled sheet for this purpose.

Thin as the tin plating has become, it may be eliminated entirely some day. "Black plate," plain cold-rolled steel sheeting, is being used for containers of coffee and lubricating oils, among other things. For coffee, the can is usually aluminum coated on the interior; phenolics, can be used for oil cans.

The black plate is usually bonderized, or treated in some manner to prevent oxidation before it is coated.

Food vs. Industry: Though food packaging takes about two-thirds of the total can manufacture, industrial packaging still demands a huge quantity of containers, and will likely see increasing use of black plate. Better than 2¼ billion oil cans are used yearly—a major black plate outlet. A steadily climbing can outlet is in the aerosol field, where last year over 43 million units were produced. (The fast-selling foam shave cream units are lined very much like beer cans.)

The staggering quantity of cans—close to 2¾ billion for dairy products, nearly a billion for pet foods—has demanded a quantity of coating material that makes a 1500 gal./month requirement seem small. It's a demand that built up slowly, but it is assuredly far from the end of its growth.



Hedgehopping Brushkillers

BEATING THE BRUSH with airborne herbicides is the slick twist of Weyerhaeuser Timber Co., Clemons, Wash. Still testing 2,4-D and 2,4,5-T in various combinations, the lumbermen hope to cut cost, simplify and speed the job of clearing reforestation areas.

Flying souped-up, 450 h.p. Stearmans at 25-75 ft. heights, pilots dump the concentrated de-brushers on 5-10 acre test plots located at least 6 miles from nearest farms. Key to this application of herbicides: The firs' oily needles enable them to withstand sprays that kill broadleaf trees and brush. By spraying when the trees are young, the firs are given a head start on competing brush and trees, which thrive in the rainy Northwest.

SPECIALTIES . . . . .

Fire Fighter: Pyrene Manufacturing Co. has introduced a new foam for fire fighting. Claimed to be effective against large fires of alcohol and other water soluble solvents, the low protein foam has been tabbed Pyrene's Alcohol Resistant Foam compound. It is mixed with water for use, six parts of the foamer to 94 of water.

•

Competition Afoot: Maybe they're lowering themselves, but English rubber interests are trying to work out a natural rubber based material for shoe soling. Called "cyclised rubber," the new product will be put into production at a plant near Kuala Lumpur, in Malaya, and is expected to give the U.S.-developed soling materials stiff competition.

•

Antistatic Polish: Just hitting the commercial market after a couple of years testing is Lustrol polish, made by Chemical Formulators (Newark, N.J.). Containing 6% silicones, the emulsion product is claimed to be useful for cleaning and polishing glass, furniture, and automobiles. No abrasives are included in the formulation, which is plugged for its non lint-collecting, antistatic electricity qualities.

•

Stable, Safe: Three new products of the John B. Moore Corp. (Nutley, N.J.) are Orthosene, Per-trolene, and Frigisol. The products are degreasing solvents for electrical and mechanical parts, and are claimed to replace carbon tetrachloride as low flash point, relatively non-toxic cleaning compounds.

•

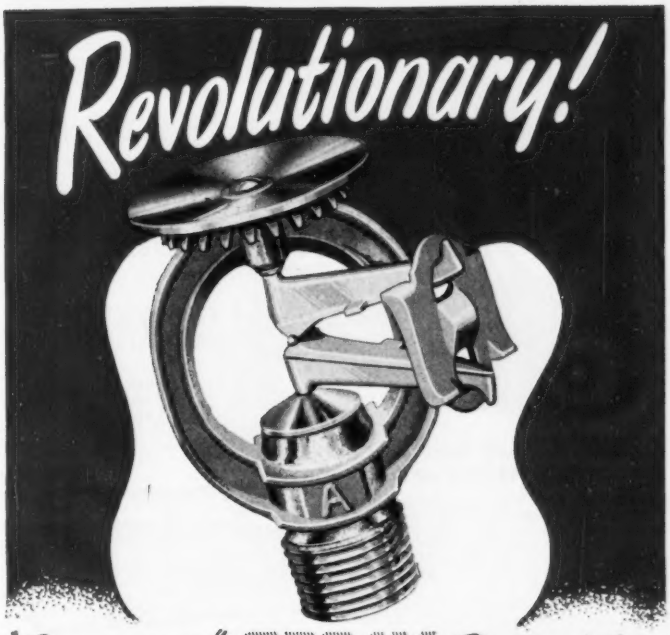
Delrac Move: Delrac Corp., Watertown, N.Y., maker of synthetic resins, will move to larger facilities in Watertown.

•

Oil Blender: Fritzsche Brothers of Canada, Ltd., is building at Toronto a new, one-story plant that will be large enough to house laboratories and offices, besides providing nearly twice the amount of floor space in the firm's present factory. The company—a subsidiary of Fritzsche Brothers, Inc., of New York, blender of essential oils—plans to move into its new quarters before January.

•

Short Cut: A new drying oil, based on linseed oil and styrene, is announced by Spencer Kellogg & Sons Research Laboratories as a development that eliminates the previous necessity of using an oxidized or conjugated oil in producing a styrenated oil. Completely miscible with solvents and with refined drying oils, the new "Lynstrol" is described as a brilliantly



"Automatic" SPRAY Sprinkler

LIFE - PROPERTY - MONEY SAVER!

Here's the most revolutionary development in the science of fire protection. Now, new buildings or buildings that are not presently fire safe can realize substantially better protection and — **at no additional cost.** Sprinklered properties can be made **PLUS-SAFE** by merely replacing old style sprinkler heads with the new "Automatic" **SPRAY** Sprinklers.

An investment in "Automatic" **SPRAY** Sprinkler protection is an investment in the future security of your own business. Get complete information from your nearest "Automatic" Sprinkler fire safety engineer or clip and mail the coupon for our free illustrative folder.

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YOUNGSTOWN, OHIO
OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

"Automatic" Sprinkler

FIRST IN FIRE PROTECTION

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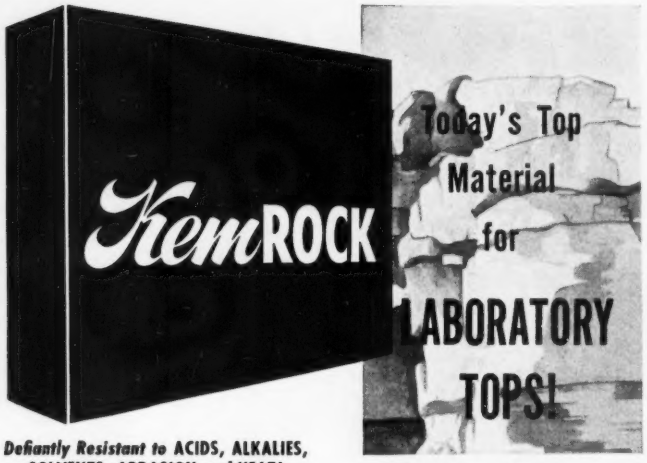

Defiantly Resistant to ACIDS, ALKALIES, SOLVENTS, ABRASION and HEAT!

KemROCK Tops are sawed slabs of quarried porous stone, impregnated and coated with a synthetic resin—then baked at high heat. The result is an amazingly tough, acid-resistant, jet black product, which takes a high polish and becomes the most beautiful and serviceable material for all Laboratory Tops.

Protect your investment in Laboratory Desks, Sinks, etc., by making sure you get KemROCK —an exclusive Kewaunee Product.

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SPECIALTIES . . . . .

WIDE WORLD

Fabric Brightener

NOW AEROSOL-APPLIED, Fab-Spray, a plastic resin-based mineral pigment, has been introduced in a push-button container by Henderize, Inc. (Sacramento, Cal.) for brightening faded upholstery and drapes. Model Pam Martin shows how the spray covers stains and streaks, blots water spots. Available also in non-aerosol form, it is said to dry in 36 hours with little effect on the fabric's hand.

clear oil that produces hard, clear films drying in 15 to 20 hours.

•

Water Stoppers: Waicote Co. of America plans to open late this month a new branch plant in Birmingham, Ala., to manufacture waterproofing paints, caulkings and about 40 other items in this line. In charge will be Howard A. Cozard, division manager.

•

Custom Molding: Taking up the custom molding of its own oilless Rulon plastic bearing material and Du Pont's polytetrafluoroethylene resin Teflon, Dixon Lubricating Saddle Co. in Bristol, R.I., also will carry a stock of both plastics in rods, tubes and cross-sectional shapes. Free leaflets are available.

•

Southern Stockrooms: Chas. Pfizer & Co.'s new warehouse in Atlanta, Ga., has room for regional offices for the concern's antibiotic, bulk chemical and agricultural sales divisions, plus more than 20,000 sq. ft. of warehouse facilities. The company says this stocking point will assure a large, ready supply of antibiotics for use in any emergency in the area.

FOR SALE

STAINLESS STEEL

COMPLETE STOCK OF STAINLESS STEEL

BARS - SHEETS - PLATES

SAME DAY SHIPMENT FROM STOCK • ONE POUND OR A CARLOAD

We Specialize in Stainless Steel Only • Additional Items Arriving Daily

STAINLESS SHEETS

Gauge	Size	Pcs.	Type
18	36" x 120"	19	304
18	38" x 96"	2	316
16	36" x 120"	40	304
16	19" x 120"	4	316
16	42" x 106"	1	316
16	19" x 36"	1	316
16	21" x 114"	1	316
16	21" x 60"	1	316
16	36" x 128"	1	316
16	34" x 128"	2	316
16	20" x 120"	1	316
16	18" x 120"	2	316
14	36" x 120"	2	316
14	22" x 120"	10	316
14	38" x 120"	2	316
14	18" x 120"	2	316
14	20" x 120"	6	316
14	45" x 120"	1	316
14	22" x 114"	1	316
14	48" x 120"	1	316
14	32" x 80"	1	316
12	40" x 110"	1	302
12	40" x 90"	1	302
12	36" x 126"	1	304
12	28" x 120"	1	316
12	36" x 102"	1	316
12	40" x 136"	1	321
11	24" x 114"	1	302
11	48" x 120"	1	304
11	52" x 124"	1	304
11	48" x 110"	1	304
11	48" x 148"	3	304
11	48" x 150"	2	304
11	36" x 72"	1	321
11	20" x 96"	1	321
11	20" x 120"	2	321
11	28" x 90"	1	347
10	36" x 96"	74	304
10	24" x 100"	1	304
10	12" x 116"	2	304
10	28" x 114"	1	304
10	27" x 114"	1	304
10	20" x 132"	1	304
10	23" x 132"	1	304
10	48" x 144"	1	304
10	27" x 108"	1	304
10	27" x 106"	1	304
10	24" x 115"	1	304
10	28" x 114"	1	304
10	24" x 120"	1	304
10	32" x 138"	1	347
9	40" x 100"	1	304
9	36" x 144"	1	304
9	32" x 108"	1	304
9	28" x 112"	1	304
9	26" x 120"	2	304
9	20" x 120"	5	347
9	26" x 40"	1	347
9	26" x 100"	1	347

STAINLESS ROUND BARS

TYPE 303

Diameter	Weight
3/16"	500 lbs.
5/16"	620 lbs.
1/2"	500 lbs.
5/8"	228 lbs.
9/16"	517 lbs.
11/16"	231 lbs.
3/4"	1,000 lbs.
13/16"	978 lbs.
15/16"	23 lbs.
7/8"	25 lbs.
1"	12,000 lbs.
1-1/8"	944 lbs.
1-3/16"	210 lbs.
1-5/16"	4,403 lbs.
1-3/8"	2,984 lbs.
1-15/16"	2,400 lbs.
3"	219 lbs.

TYPE 304

1/2"	500 lbs.
1-5/16"	1,000 lbs.
3"	200 lbs.
3-1/4"	620 lbs.

TYPE 309

5/16"	600 lbs.

TYPE 321

1"	10,000 lbs.

TYPE 347

3/4"	1,002 lbs.
1-3/16"	200 lbs.
1-21/64"	1,210 lbs.

STAINLESS HEXAGON BARS

TYPE 303

1/2"	437 lbs.
3/4"	228 lbs.

TYPE 347

1/2"	536 lbs.
5/8"	63 lbs.

STAINLESS TUBING

TYPE 304

OD	Wall	Quantity
1-1/4"	.150	560 ft.
3-1/2"	16 ga.	110 ft.

STAINLESS PLATES

Gauge	Size	Pcs.	Type
1/8"	36" x 80"	2	321
1/8"	36" x 108	1	321

STAINLESS PLATES

Gauge	Size	Pcs.	Type
1/8"	36" x 117"	1	321
1/8"	36" x 112"	1	321
3/16"	26" x 135"	1	321
3/16"	32" x 120"	1	321
3/16"	28" x 120"	1	321
3/16"	36" x 118"	1	321
3/16"	31" x 120"	3	321
3/16"	36" x 106"	1	321
3/16"	34" x 103"	1	321
3/16"	24" x 52"	1	304
3/16"	18" x 77"	1	304
3/16"	18" x 81"	1	304
3/16"	30" x 109"	1	304
3/16"	32" x 120"	1	304
3/16"	60" x 180"	2	304
3/16"	24" x 65"	1	304
3/16"	60" x 204"	1	316
3/16"	24" x 93"	1	321
3/16"	32" x 93"	1	321
3/16"	49" x 93"	1	347
3/16"	18" x 47"	1	347
3/16"	22" x 97"	1	347
3/16"	23" x 60"	1	347
3/16"	15" x 56"	1	347
3/16"	44" x 45"	1	347
3/16"	25" x 88"	2	347
1/4"	48" x 132"	2	304
1/4"	30" x 76"	1	304
1/4"	60" x 117"	1	304
1/4"	36" x 120"	1	321
1/4"	31" x 100"	2	347
1/4"	13" x 80"	1	347
1/4"	13" x 110"	1	347
1/4"	13" x 53"	1	347
1/4"	12" x 120"	1	347
1/4"	13" x 110"	1	347
1/4"	13" x 79"	1	347
1/4"	13" x 114"	1	347
1/4"	28" x 42"	1	347
1/4"	34" x 42"	1	347
1/4"	39" x 47"	1	347
1/4"	96" x 243"	1	304
1/4"	36" x 104"	1	321
1/4"	36" x 117"	2	321
1/4"	36" x 119"	1	321
1/4"	36" x 89"	1	321
1/4"	27" x 120"	1	321
1/4"	36" x 112"	1	321
1/4"	36" x 81"	1	321
1/4"	34" x 132½"	1	321
1/4"	32" x 120"	1	321
1/4"	34" x 120"	3	321
1/4"	36" x 36"	1	321
1/4"	96" x 237"	1	304
1/4"	96" x 260"	1	304
1/4"	96" x 255"	1	304
1/4"	96" x 298"	1	304
1/4"	96" x 294"	1	304
1/4"	96" x 250"	1	304
1/4"	96" x 266"	1	304
1/4"	96" x 281"	1	304
1/4"	96" x 298"	1	304
1/4"	96" x 255"	1	304
1/4"	96" x 301"	1	304
1/4"	96" x 250"	1	304
1/4"	91" x 87"	1	304

STAINLESS SHEETS

Gauge	Size	Pcs.	Type
1/4"	96" x 258"	1	304
1/4"	94" x 260"	1	304
5/16"	19" x 88"	1	304
5/16"	30" x 36"	1	304
5/16"	20" x 120"	1	304
5/16"	29" x 36"	1	304
5/16"	48" x 120"	3	316
5/16"	20" x 60"	1	347
5/16"	30" x 120"	1	347
3/8"	49" x 126"	1	347
3/8"	37" x 51"	1	347
3/8"	30" x 120"	1	321
3/8"	8" x 114"	1	304
3/8"	18" x 49"	1	304
3/8"	27" x 30"	1	304
3/8"	9½" x 49"	1	304
3/8"	19" x 142"	1	321
3/8"	36" x 113"	1	321
3/8"	36" x 112"	1	321
3/8"	40½" x 41¼"	1	321
3/8"	37" x 37½"	1	321
7/16"	9½" x 49"	2	304
7/16"	29" x 32"	1	316
7/16"	33" x 42"	1	316
7/16"	25" x 60"	1	316
7/16"	33" x 56"	1	316
1/2"	48" x 120"	1	304
1/2"	48" x 95"	7	304
1/2"	10" x 35"	3	304
1/2"	48" x 120"	6	316
1/2"	33" x 46"	1	316
1/2"	32" x 140"	1	321
1/2"	20" x 42"	1	347
1/2"	36" x 112"	1	321
1/2"	23½" x 25"	1	321
1/2"	22½" x 25"	1	321
1/2"	28" x 26"	1	321
1/2"	22" x 25½"	1	321
1/2"	21½" x 25½"	1	321
1/2"	25" x 28"	1	321
9/16"	19" x 38"	1	304
9/16"	18" x 38"	1	304
5/8"	25" x 47"	1	304
5/8"	28" x 44"	1	304
5/8"	24" x 43"	1	304
5/8"	29" x 45"	1	304
5/8"	26" x 26"	1	304
5/8"	24" x 46	1	304
5/8"	30" x 43"	1	304
5/8"	39" x 45"	1	304
5/8"	18" x 55"	1	304
5/8"	35" x 65"	1	316
5/8"	20" x 27"	2	316
3/4"	143¾" x 138"	10	304
3/4"	15" x 138"	2	304
3/4"	143¾" x 135"	1	304
3/4"	143¾" x 68"	1	304
3/4"	15" x 108"	4	304
3/4"	15" x 168"	3	304
1-1/8"	15" x 50"	1	316
1-1/4"	10" x 42"	3	316
1-1/4"	21" x 64"	2	304
1-1/4"	20" x 46"	1	316
1-7/16"	19" x 42"	1	304
1-1/2"	29" x 32"	1	304
1-1/2"	29" x 29"	1	304

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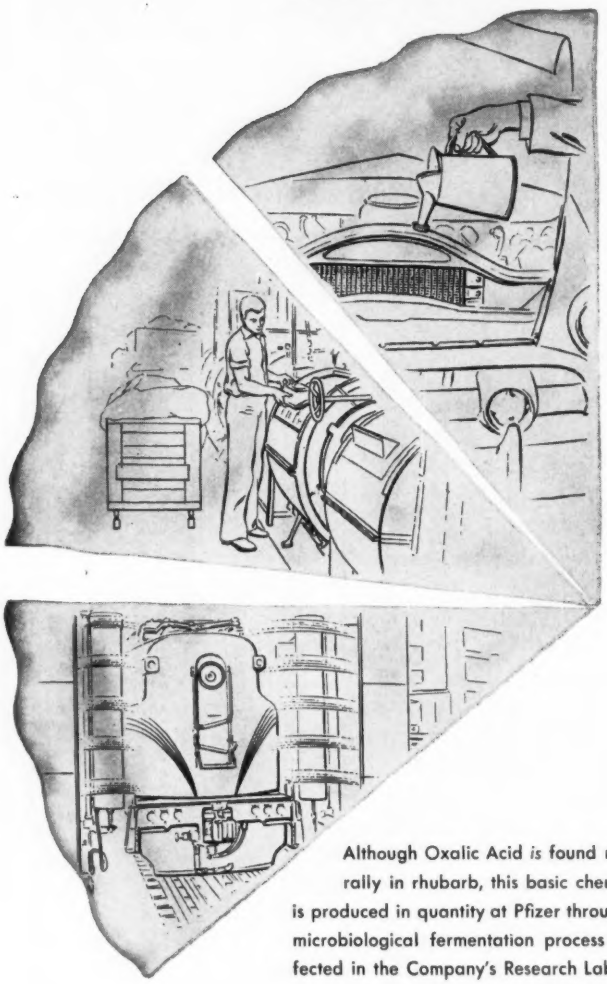

but it won't

fill your needs for

Oxalic Acid

Although Oxalic Acid *is* found naturally in rhubarb, this basic chemical is produced in quantity at Pfizer through a microbiological fermentation process perfected in the Company's Research Laboratories. The Pfizer process yields Oxalic Acid of high purity.

Because of its ability to solubilize iron oxide, Oxalic Acid is highly effective as an ingredient of metal cleaning compounds, in radiator flushes and as a rust remover in textile and leather processing. Its bleaching properties make it useful as a laundry sour and in the treatment of straw, cork and leather.

For more detailed information on the varied uses of this important organic acid, write for Technical Bulletin *34.

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What's in a Name?

Purchasing agents and industry sales managers are this week still trying to figure out exactly what happened when Berkshire Chemicals (New York) bought Innis, Speiden & Co., Inc., from International Minerals & Chemical (CW, Oct. 25).

The confusion has become so serious that International Minerals has been forced to issue a special explanation on what, specifically, it sold to Berkshire. The misunderstandings are understandable: Both Isco and Berkshire have gone through some complicated corporate changes in the last two or three years. These have to be unravelled in order to clarify the purchase of one by the other.

Berkshire Chemicals, as a corporate name, is only a year old this month. But as a commercial enterprise, it can trace its history in the U.S. chemical industry back to 1929. In that year, F. W. Berk & Co., Ltd., a London chemical manufacturer and trader, established an American subsidiary to facilitate its sales in this country and to act as purchasing agent for the parent company's international trading activities. The following year, an agreement was reached with a German firm for the joint building and operating of a plant in Wood-Ridge, N.J., to be known as the Wood-Ridge Manufacturing Co., maker of inorganic mercurials and refined mercury.

By the end of 1939, Berk had bought the other half of the operation and had merged the manufacturing end with its growing import-export and domestic sales-agency business. The product line was broadened in 1940 with the addition of organic mercurials, and during the war, with zirconium salts.

Three Years, Three Names: It was in 1949 that life became complicated for purchasing agents dealing with the Berk interests. Because the firm had become so firmly established on the U.S. chemical scene, it seemed advisable to handle its sales through a purely American organization. The result of this thinking was the formation of a new firm, Millmaster Chemical *Corp.*, half-owned by Malcolm McAllister (an American citizen), the other half interest being held by New York's Robert Milano, formerly president of his own company—Millmaster Chemical Co.

All of Berk's commercial interests were incorporated in the new organization. F. W. Berk & Co. moved its executive offices to Wood-Ridge and became, in the main, a manufacturing and research concern. This continued until November of last year. At that time, Milano resigned from his post as president of the Millmaster Chemical Corp. to reactivate his own company. With him he took his earlier agency contracts and the corporate name—Millmaster.

This left Berk's McAllister with a going organization, but no name for it. He resolved his problem by creating the name Berkshire Chemicals, Inc. It took several months for the postman and harried customers to figure out whether they should be doing business with Berkshire (nee Millmaster) or Milano's new Millmaster Chemical Corp. situated three blocks away.* Fortunately for all concerned, the mixups were only semantic in nature. The two firms are not competitive—Milano's amicable separation resulting from his primary interest in bulk pharmaceuticals, organics, and intermediates.

Buyers of zirconium salts were due for still more name-changing. Three months ago, F. W. Berk leased the zirconium-processing portion of its Wood-Ridge plant to Melberk, Inc., a new company formed by Magnesium Elektron, Ltd., of England. Berk maintains a one-third interest in Melberk.

Enter Isco: All of this switching set the stage for the Innis, Speiden purchase. MacAllister needed a national sales force to carry out his long range plans, and just such an organization was available on the market. As the result of the negotiations now completed, McAllister bought the Innis, Speiden name, good will, organization, and six-office sales force.

But what he bought is only a segment of the company purchased by International Minerals in July of last year. At that time, Innis, Speiden & Co. was a 135-year-old firm with plants at Jersey City, N.J., and Niagara Falls, N.Y. It had diversified into gums, waxes, talcs, silicas, and potash products. Its Niagara Falls plant was an important producer of potassium carbonate and caustic potash.

It was this plant that caught the eye of fast-growing International Minerals. International has been striving to vertically upgrade its Carlsbad potash salts. The Isco plant would be ideal for this purpose.

* Just to make things even more confusing, Milano's Millmaster is the owner and sales agent for New Jersey's Berkeley Chemical Co. The first syllable similarity is purely coincidental.

BERK'S McALLISTER: Millmaster to Berkshire to Innis, Speiden?

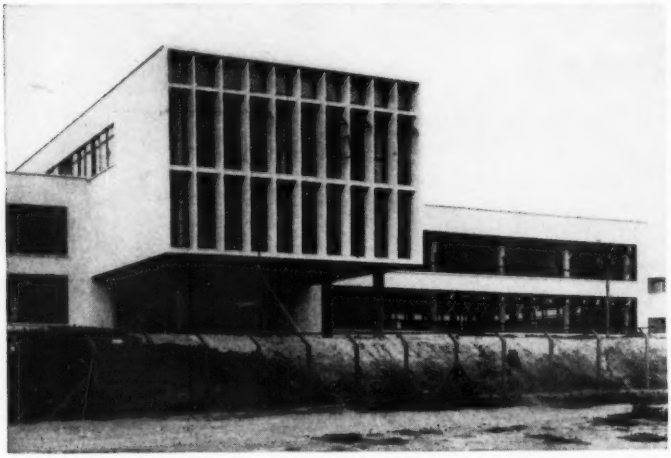
But with the potash plant, International also got a miscellany of other chemical activities. It was impossible to take the one without inheriting the other.

To get around this dilemma, the Chicago firm split up its purchase, carefully sifting out what it wanted from what it didn't want. The unwanted parts were then lumped together into a new New York company known as Innis, Speiden & Co., *Inc.* At first it was hoped that this could be sold as a unit, but when that failed, International broke it up and sold the pieces.

By the time McAllister put in his Berkshire bid, Isco's gum and wax division, its insecticide division, and its E. S. Browning Co. (San Francisco) subsidiary had all been disposed of. Two of these went to former Isco executives, one to Conrad Johnson and the other to E. S. Browning himself.

Exit Berkshire: In addition to the Innis, Speiden name and good will, McAllister is obtaining established sales offices in Boston, New York, Philadelphia, Chicago, Cleveland, and Gloversville, N.Y. He also takes over several of Isco's major resale contracts, including one with International Minerals for LCL quantities of potash salts.

Because McAllister first looked to Millmaster, and then to Berkshire as his selling arm, it is logical to expect that he will eventually swing the bulk of his sales activities to his new acquisition. Such a move would end the necessity for maintaining Berkshire as a corporate entity. If he takes this step in the near future, it will mean one more name-change for the long-suffering buyers of Wood-Ridge mercurials.



SQUIBB IN BRAZIL: For a "nation of hypochondriacs," a building boom.

Behind the Restrictions

PSS MCGRAWHILL/NY
FOR CHEMWEEK/TOUGH
IMPORT SITUATION
MAKES IMPERATIVE MORE
FARMACEUTICAL MANUFAC-
TURING BRAZIL STOP
PRACTICALLY NO IMPORTS
FINISHED ITEMS . . .
EVEN TOUGH IMPORT RAW
MATERIALS WHICH UNLESS
EASED WOULD KILL MANU-
FACTURE DRUGS HERE STOP
EVEN TOUGHER TO GET
CHEMICALS FROM EUROPE
THAN USA STOP ONLY
ALTERNATIVE IMPORT
SITUATION IS CREATION BASIC
CHEMICAL INDUSTRY BUT
THATS WAY OFF . . .

With these terse statements, CW's representative in Brazil last week cabled his explanation for the current rash of new-plant developments in that country involving American pharmaceutical companies.

The main interest right now is in the drug field, but other sections of the U.S. chemical process industries are coming to realize that if they want to do business with Brazil's 53 million citizens, they had better start considering building subsidiary plants there. Plastics and synthetic fibers are getting special attention.

It isn't difficult to figure out the "why" of this situation. Brazil has been forced to slap a heavy hand on all imports. As a country, it is deeply in debt to American, British, and German exporters. Unpaid bills are up near the $500 million mark—more than the combined gold and foreign exchange reserves in the Bank of Brazil. President Getulio Vargas is struggling to counteract the basic troubles which have created the imbalance, steadfastly refusing to ask for the temporary relief of a U.S. Government loan. So the immediate prescription is to sharply limit imports.

In such a climate, American pharmaceutical companies, which consider Brazil a prime market, are losing no time in moving behind the trade barrier with plants of their own. Here are the latest developments:

• By January of next year, **E. R. Squibb & Sons Do Brasil** will have moved into its new plant now abuilding in a suburban part of Sao Paulo. Squibb will use this to finish and package drugs manufactured in the U.S. But sometime in 1953 it will have completed a unit being built on the site to make penicillin and other antibiotics. As of the present, Squibb is importing about half its products as finished items, the balance as raw materials. When the plant is completed, however, only raw materials will be brought through the import curtain.

• **Pfizer Inter-American S. A.** is rushing conversion of Squibb's former plant at Sao Paulo. It expects to move into the rented building next year. At that time, Pfizer will slow down its imports of finished antibiotics and start repackaging bulk materials brought in from the U.S. Current plans do not call for basic manufacture, but that's a distinct possibility for the future.

• **Parke Davis Inter-American Corp.** is now importing no finished products. Sixty percent of its sales are of materials made entirely in Brazil, the rest representing drugs made from American raw materials. The Parke Davis plant is being expanded.

• **Sterling Drug's** Latin American subsidiary, Sydney Ross Co., is building a $3 million plant fifteen miles from Rio de Janeiro. This will replace its present plant in that city. As of today, Sydney Ross imports only 7-8% of its finished-product sales. Another 2-3% are packaged from imported bulk drugs, the balance being made entirely in Brazil. The new plant, when finished, will be the largest pharmaceutical plant in the country.

• **Schering S.A.** (the American firm holds only 10% of the stock) is finishing all of its products in Brazil, although over 97% of the raw materials are coming from abroad. The Schering plant is being expanded.

• **Fontoura-Wyeth** is adding a penicillin plant to its Brazilian investments. The new facility will be on the outskirts of Sao Paulo, location of its present operation.

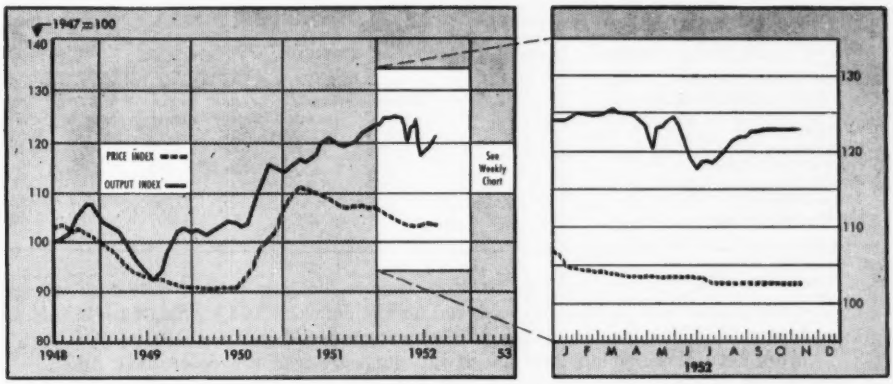
• **Meyer Chemical** (Detroit) has formed a Brazilian company, some of the capital to be raised locally, to build a quarter-million dollar plant.

Drug Heaven: There are good reasons why pharmaceutical companies want to take no chances on losing their share of the Brazilian market.* One close observer of its citizens has made the flat statement: "They're a nation of hypochondriacs." They have especially shown their fondness for the new antibiotics. Thanks to a lax prescription regulation, they are able to indulge in this liking with few restrictions.

One result is that the hypodermic syringe is practically a household necessity in most middle-class homes. At the first sign of a cold, the average Brazilian will give himself a shot of penicillin. Pharmacies will perform the rite for all comers—they'll even send a syringe-armed clerk to the home or office if desired. Some downtown drug stores have waiting lines in the evening as people drop in for a shot on the way home from work.

In this type of atmosphere, it is understandable that American firms are increasingly willing to put dollars and effort into their Brazilian-plant plans. The import regulations are not nearly so severe for chemical raw materials and bulk drugs, hence the accent on doing the final processing and packaging within the country's borders.

* The 1951 U.S. exports of medicinal and pharmaceutical preparations to Brazil exceeded $37 million.



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

When John L. Lewis bustled his way into the headlines last week with his flat refusal to order his miners back to work without the full $1.90 a day boost, he put coal mine operators on a spot.

To pay more than the WSB-allowed $1.50 means flaunting the Government; not to raises the threat of a long-drawn-out strike.

In a recent nation-wide survey of chemical process industries, *CW* posed this question: "How would a coal strike affect your operations?" The answers are optimistic, for the most part, because of the healthy backlog of coal supplies (*CW* Market Letter, Oct. 25). The degree of optimism, however, varies by region. Here is a sampling of the replies.

West Coast comment: "Coal strike won't hurt too much . . . might make coal tar solvents hard to get but it wouldn't be too much of a headache . . . can easily get aromatics from oil companies in this area . . . and there are lots of them."

From the Midwest: "If the strike is a long one, we'll suffer, but business would peter out more because our customers couldn't keep their plants going without coal than because they couldn't get chemicals made from coal."

And in the South: "We anticipated the annual fall Lewis walkout—and we're ready." "Chemicals like benzol, toluol, ammonia may tighten up, but only if the strike is prolonged."

An Eastern executive says: "If the strike lasts less than two months, it wouldn't hurt us; if much longer than that everyone would be hit and hurt about the same time." "Trouble . . . only if it lasts long enough to slow down steel production."

It all adds up to this as far as CPI are concerned: It will make little difference, at least in the next few weeks, whether or not WSB knuckles down under Lewis' demands; coal mine operators shell out the lopped-off increase via additional "fringe" benefits; miners rush back, straggle back or stay away from the mines.

Reason: The chemical marketplace is in a far healthier condition now than it has been in several months.

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	122.4	122.3	123.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	102.5	102.5	107.3
Bituminous Coal Production (daily average, 1,000 tons)	1,500.0	1,508.0	1,828.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	233.6	238.9	232.4
Chemical Process Industries Construction Awards (Eng. News-Record)	$40,847,000	$54,690,000	$10,553,000

MONTHLY INDICATORS— TRADE (Millions Dollars)	Manufacturer's Sales			Manufacturer's Inventories		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All Manufacturing	22,078	21,889	22,007	43,146	42,748	41,532
Chemicals and Allied Products	1,497	1,560	1,501	3,022	2,995	2,927
Paper and Allied Products	658	650	720	968	1,007	912
Petroleum and Coal Products	2,039	1,956	2,012	2,739	2,683	2,568
Textile Products	1,056	1,162	1,175	2,783	2,764	3,483
Leather and Products	271	276	287	557	554	680

Lead prices continue to drop. Buyers, holding back, waiting for lower prices, saw another ½¢ chipped off the domestic 14¢/pound tag late last week. With foreign metal still hovering around a low 12½¢/pound-level, even U. S. sellers hesitate to say domestic lead schedules have hit bottom.

Some 30-40 thousand tons of British lead being released on the market is one factor behind the unsettled condition. Another 60-80 thousand tons of London metal is still overhanging the world market. Add to this a lot of other foreign lead (from So. Africa, Australia, Germany, etc.) now being offered here at about the 12½¢ a pound figure, and this becomes clear: Domestic lead prices are bound to slip further.

Domestic zinc prices, too, are taking a beating from foreign material. Relatively stable for the past few weeks—after a short-lived price war that sent prices down to 13½¢/pound—a new 1¢/pound slash late last week has zinc going for 12½¢, lowest in two and a half years.

Traders indicate the latest cut reflects competition from the sizeable tonnages of foreign zinc now being offered in this country at 12½¢/pound.

Reports that the British Government will soon stop buying zinc, return the metal to private traders, has U.S. sellers watching the foreign metals field very closely.

The formaldehyde market is firming up. And that's complete about-face on the situation prevalent a short two months ago, when some producers were actually kicking around the idea of cutting production in the face of wishy-washy formaldehyde demands.

One big reason for the perk-up: Resin plants are again going full-tilt. West Coast reports say formaldehyde producers' storage tanks are all but empty; current production is going directly to consumers.

Prices, however, are expected to remain steady at present levels—4.2¢/pound, tanks, inhibited; 3.95¢, methanol-free.

The silver lining is also showing for furfural, furfuryl alcohol producers. In the doldrums for quite a while, the market is now undergoing a bright pickup. Reason: Plastics customers are buying again.

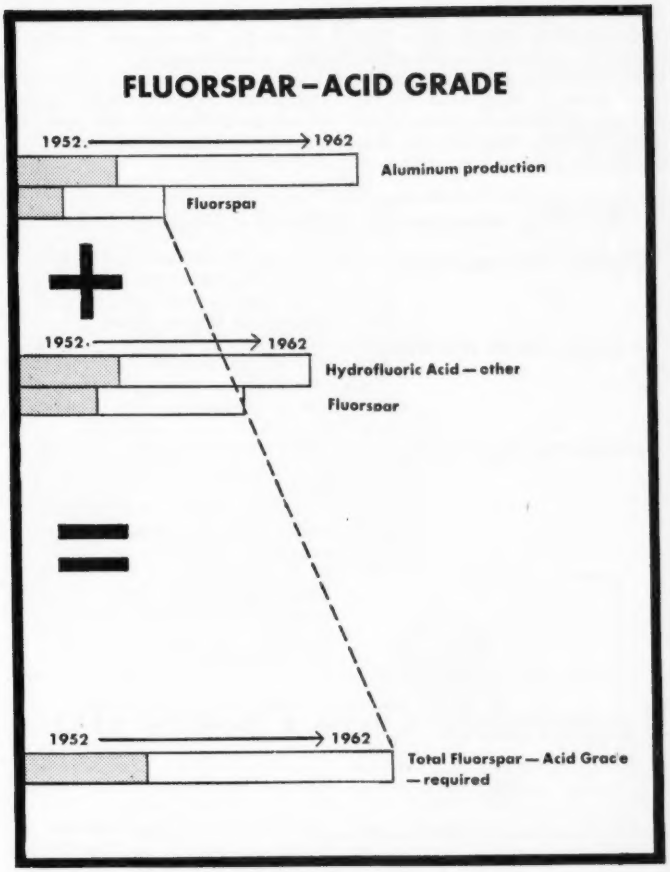
Quaker Oats, major furfural producer, with plenty on hand to meet current demand may decide to expand production. Reason: Heavy upcoming synthetic fiber demands (CW, Oct. 4).

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending October 27, 1952

DOWN

	Change	New Price		Change	New Price
Dry red lead, 95%, c.l. frt. alld	$ .005	$ .1625			
Litharge, Powd. bbls., c.l. shpt. pt. frt. alld.	.005	.1525	Orange mineral c.l.	$ .005	$ .1960
			Zinc, metal, E. St. Louis	.01	.125

All prices per pound unless quantity is stated.



Nailing Down Fluorspar

Acid fluorspar consumers, driving toward tremendous production goals, are giving the Defense Materials Procurement Agency headaches. The big boosts all require the purest grade, hardest to obtain.

Acid grade (98%-plus calcium fluoride) fluorspar is keyed to United States self-sufficiency in aluminum, high octane gas and atomic energy. Moreover, this same material is basic to fluorine-containing products such as insecticide propellants, refrigerants and highly important plastics.

A chemical of such critical value surely must be watched diligently. And DMPA, the government body charged with finding supplies for defense-vital industries, is taking action.

By this week it has approved construction of six new processing plants, expansion of three more. Although privately financed, all nine projects are being granted fast tax write-offs.

In addition, Uncle Sam is guaranteeing them sales contracts on expansion output for several years, will even advance credit to two of them against future production.

Reasons for DMPA's painstaking are (1) a 200% boost, by 1962, of hydrofluoric acid-eating products and (2) a 250% projected aluminum increase over the same period.

Some fluorspar consumers (basic open-hearth steel producers, for example) can easily work with the inferior metallurgical grade. Not so hydrofluoric acid or aluminum; they require a silica-low grade—i.e., acid fluorspar, and more of the same.

Despite the Cons: Leaders of one industry, the aluminum producers, demurring at the government goals, claim (*CW, July 19*) temporary self-sufficiency; they're sure (they say) of adequate natural cryolite, won't need acid fluorspar for synthetic cryolite for at least 15 years.

Not impressed with the argument,

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(PHENOL RED)
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THYMOLPHTHALEIN
As pH indicator and test for blood
BENZIDINE DIHYDROCHLORIDE
Reagent for test for blood
PROPYL GALLATE
An anti-oxidant for edible animal fats
Our research department has solved the synthesis of such complicated organic chemicals as PHENYLEPHRINE HYDROCHLORIDE U.S.P., TETRACAINE U.S.P. & METHONIUM HYDROBROMIDE pharmaceutical grade. We will be glad to supply these materials, as well as to develop synthesis and manufacture your specific products.
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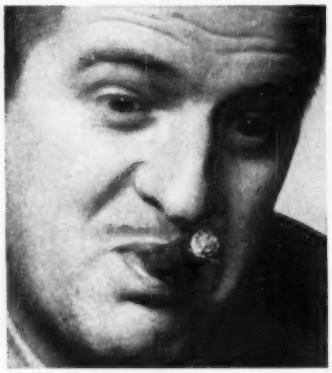

FRUSTROSITY* CASE No. 68:

Mr. Wrongflo and his process are both suffering. If he had a 1952 Brookfield Viscometer at hand, he would know all the viscosity answers — *could make determinations directly in centipoises in a matter of seconds in lab, plant, or both.* Whether the materials you work with are Newtonian or non-Newtonian, you owe it to your wife, customers and co-workers to get up-to-date information on Brookfield Viscometers *adaptable to any problem from less than one to 32,000,000 centipoises.* Ask your Lab Supply House or drop a line to Dept. C, Brookfield Engineering Laboratories, Inc., Stoughton, Mass.

*FRUSTROSITY is that frustrated condition a man gets into when his problem is Viscosity Determination or Control and he hasn't asked BROOKFIELD.

DMPA is taking a longer view looking also to encourage imports of the domestically-tight material. Last year, in an effort to bring more in, the tariff rate on acid fluorspar was slashed to $2.10 per long ton, less than half average previous rates and a mere quarter the rate on more abundant lower grade fluorspar.

In a recent sum-up, the U.S. Tariff Commission reports, "Total supplies of acid-grade fluorspar will probably meet U.S. requirements during the next few years."

Bustling newcomer in frozen dessert field

Opens this market:
- **New 80-90-million pound oils outlet if it captures but 20%-25% of annual 600-million gallon ice cream sales.**

Views these hurdles:
- **Restrictive Federal, State laws barring manufacture, sales.**
- **Opposition from organized dairy industry, milk producers.**

Looks to these aids:
- **Lower-than-ice cream selling price—about 50% less per pint.**
- **Cheaper basic ingredient—vegetable oils, about 22¢/-pound vs. butterfat at $1.00-$1.25/pound.**
- **Some top-rung ice cream makers are already "in".**
- **Consumer acceptance: prompt and promising.**

Vegetable Oils Freeze Up

Set a tempting dishful of a smooth, cold, creamy concoction before an eager-eyed youngster; casually mention "This is not ice cream," and chances are—if he's an exceptionally well-mannered child—he will make no comment as he digs in, merely look askance.

The same incredulity is today reflected in the attitude of the dairy industry as it realize the inroads being made, in many sections of the country, by ice cream imitations—frozen desserts in which cheap vegetable oils replace expensive butterfat.

It may be a question whether or not a repeat of the bitter butter-oleomargerine rippet between milk producers and vegetable oil processors is in the offing, but this much is certain: Oil processors are happy to sell their product wherever they can find a buyer, and more and more ice cream manufacturers are stepping up as customers.

Paradoxical as it may seem, ice cream makers are not aligning themselves with dairy people in the oil dessert vs. ice cream arena. And for these three hard economic reasons:

- Relative raw material costs of the principal ingredient—butterfat for ice cream, high; vegetable fats for the other, low.
- Possibility of weaning back, with a "low price line," consumers who have curtailed their purchases because of rising ice cream prices.
- The newer product calls for no special equipment or processing—manufacture, storage and handling of the frozen oil confection is the same as for ice cream.

And to those reasons you can add this fact: Even experts have a difficult time distinguishing the two via the taste-test.

Defense Decision: Ice cream makers may well feel that entering the frozen oil dessert field provides a long-sought defensive weapon against mounting costs of butterfat. Heretofore, the milk producers set the butterfat prices at levels they considered in line with prices they had to pay for other goods; in effect, adopted a "take-it-or-leave-it" attitude toward butterfat consumers.

Now, however, early reports of enthusiastic consumer acceptance of the butterfat-less product could have a double-barrelled impact: on ice cream manufacturers—a chance to reject high-cost butterfat; on dairy farmers—a sobering reminder of the good-sized chunk of the butterfat market market lost to oil processors via oleomargerine.

Tough Fingering: While it is difficult to pound-pinpoint the upcoming

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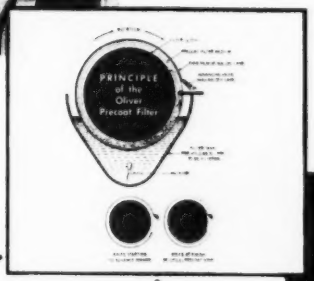

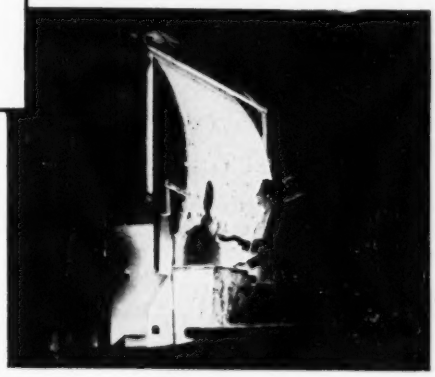

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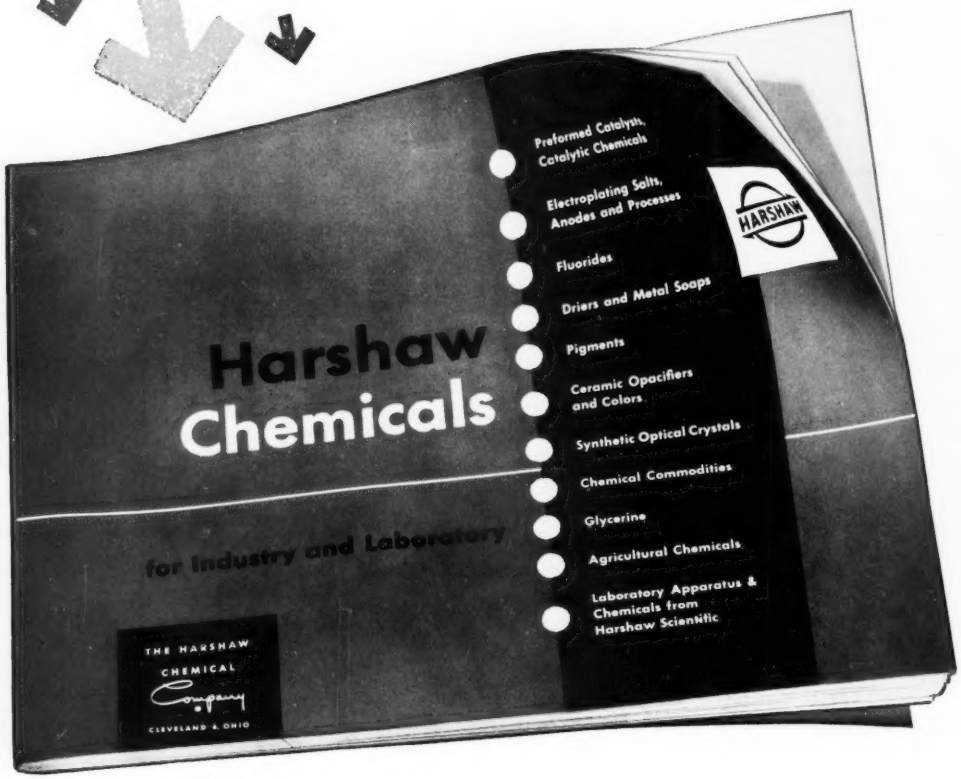

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market for vegetable oils—cottonseed, coconut, soybean, peanut, and admixtures—a quick glance at the Chicago area gives an indication of what's happening wherever hamstringing restrictions against manufacture and sale of the vegetable fat dessert have been lifted or eased.

One major Chicago producer of the basic fat mixes used by manufacturers of the new products estimates that some 800,000 gallons will have been sold there this year. And a conservative guess for 1953 would be 2 million gallons of finished packaged frozen oil dessert. This amount will take about 1.1 million gallons of mix. (In formulating, one gallon of mix is blown up to two gallons of dessert).

While mixes contain varying percentages of vegetable oils—some as low as 6%, some 8%—using too much over 10% causes the product to lose some of its resemblance to real ice cream. Assuming the average formulation consumes nearer the 10% figure, that 1.1 million gallons of mix would need about 1.1 million pounds of vegetable oils (one gallon mix contains about 1 pound of fats or oils).

Expanding Markets? On a nationwide scale only four states (Texas, Oklahoma, Illinois, Missouri) so far have legalized sale of the new product. But note this: Applications for a legal stamp of approval to make and sell the creamless goodie are pending in some 18 states. Typical moves include asking the state legislature to relax restrictions on "foreign" fats in frozen desserts. In Indiana one ice cream company is reportedly pushing a test case before a state court to determine the legality of a state law which says vegetable frozen desserts are "adulterated."

Although some experts are conservatively inclined to regard current sales of the so-called synthetic as largely business in addition to the established market for regular ice cream, they also consider this strong possibility: Within the next four or five years—providing legal bars are let down—vegetable fat frozen desserts could take a hefty bite of the annual 600-million-gallon ice cream market.

Biggest selling point for the newcomer, of course, is price to the consumer. The oil product sells for roughly 20¢ a pint, compared to ice cream's about 40¢. If this attractive price differential holds firm, it may not seem too fantastic to assume the new product could lop off some 20-25% of the "king of dessert's" market—a whopping 80-90-million pound new end use for vegetable oils.

It is not possible to point a finger

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MARKETS . . . . . .

at any oil and say, "This is best," for preference seems sectional. In Texas (where the frozen oil dessert was developed) cottonseed oil has the edge—not surprising since Texas is a big cottonseed state. The Department of Agriculture—if it could—would probably lean toward cottonseed oil as the prime ingredient, too. For only recently USDA offered some 120 million pounds of cottonseed oil for sale from the inventories of the Commodity Credit Corp.

In Illinois and Missouri, however, freezers seem to prefer coconut oil, say it produces a smoother mixture. But soybean processors are working hard to buck the other oils for top spot. Good advances have been made in deodorizing and improving stability of the soybean product. Cheaper price, too, will be a good selling point, for formulators can use any vegetable oil that meets their specs.

Troubles: It took years for oleomargarine to run the legal obstacle course that barred its unfettered marketing, and chances are vegetable fat desserts will face the same stumbling blocks.

At the moment the product has practically no official acceptance. The Food and Drug Administration will not allow its makers to use the name "ice cream"; further, says any product made in the semblance of ice cream (and the "synthetic" is made that way because it's cold, a creamy dessert, etc.) is "adulterated." An FDA spokesman positively states there is nothing in the wind as far as establishing Federal Standards for the new product. The Federal policy thus restricts sales to within the borders of the state where made. The FDA statement was made in response to a feeling-out by some manufacturers who wanted to sell across state lines. Needless to say, it temporarily stopped such out-of-state plans.

In addition to Washington's lack of cooperation, many states have stringent laws against the use of "foreign" oils in ice cream—a high barrier against the frozen oil dessert becoming a full-fledged ice cream competitor.

But most ice cream makers who have entered the low price frozen dessert field see the American consumer making the ultimate decision—vegetable fat vs. butterfat—in desserts, as he is doing in the breadspread, butter vs. oleo, hassle.

And it's a good bet, if oil processors are not actually in the battle, they are certainly partisan sideline cheerers for the booming frozen vegetable oil dessert.

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20-p. brochure discusses industrial instruments for the measurement and control of process variables, contains complete details of temperature recorder construction, and general factual information. Actual installation photographs, design features, thermal systems, charts and accessories are included. Request bulletin 447, The Foxboro Co., Foxboro, Mass.

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Driers

4-p. technical data folder describes driers for refrigeration and air-conditioning including non-refillable type driers, straight-through, refill cartridge type flanged driers, and angle refill cartridge type flanged driers. Prices and specifications are given. Request bulletin 700, Henry Valve Co., 3215 North Ave., Melrose Park, Ill.

Gas-Air Inspirators

6-p. booklet describes type and sizes of high-pressure gas-air inspirators and boosters for industrial furnaces, ovens, kilns, driers, etc. Main features, new designs, normal capacity tables, cross-sectional drawings, and suggestions for application are included. Catalog No. 806A, Hauck Manufacturing Co., 124-136 Tenth St., Brooklyn 15, N.Y.

Air-Entrainer

14-p. booklet discusses Ayr-Trap, an air-entraining agent, including principles, functions, effects on hardened concrete, effects on concrete in the plastic state, and the factors affecting the amount of air-entrainment. A. C. Horn Co., Inc., 10th St. and 44th Ave., Long Island City 1, N.Y.

Compressors

8-p. bulletin describes hermetically-sealed refrigeration compressors and condensing units of 75 to 100 h.p. capacity. Includes a table of specifications. Request bulletin DB 101-160, Westinghouse Sturtevant Division, 200 Readville St., Hyde Park, Boston 36, Mass.

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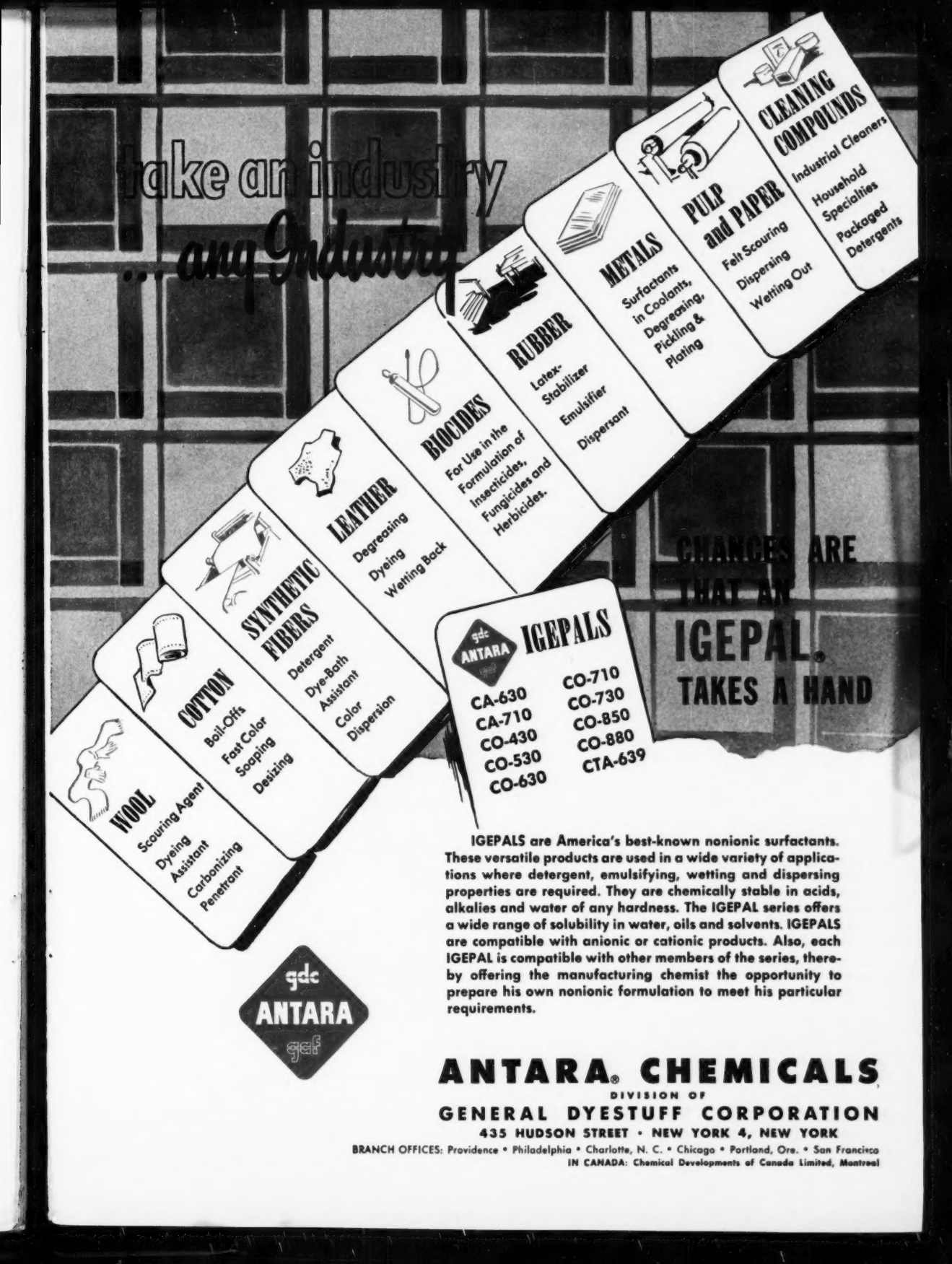

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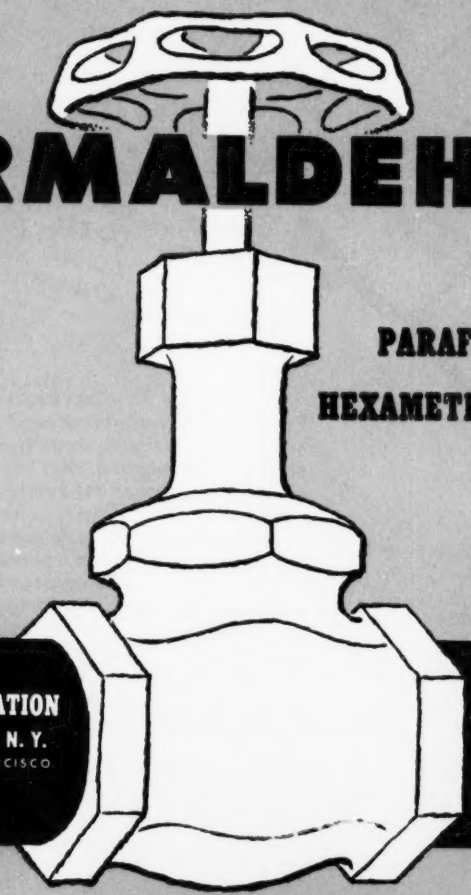

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